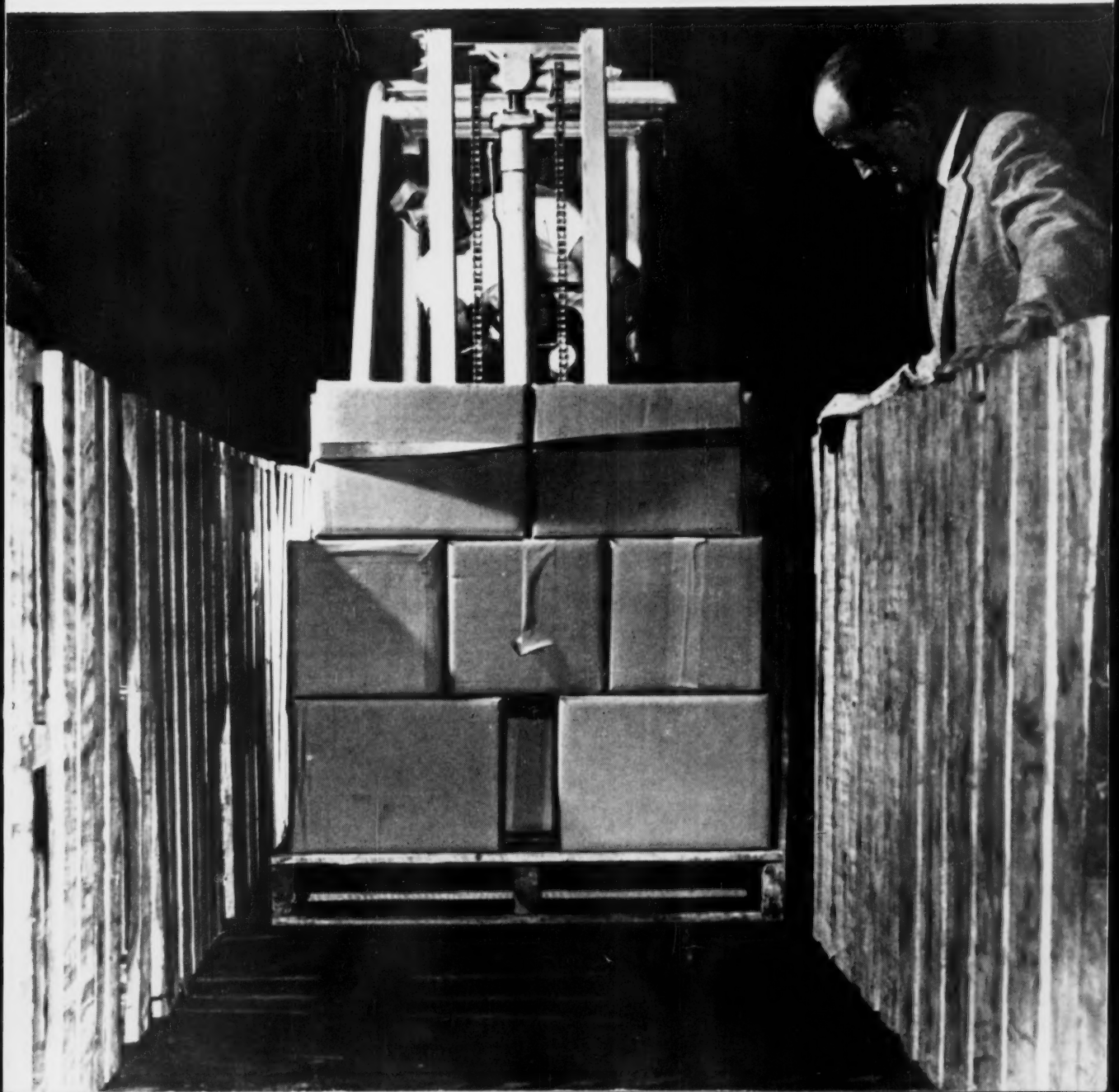
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A CHILTON PUBLICATION

JANUARY 1957





All 'Round Utility—Mercury "Banty" with special shelf-trailer for maintenance and special parts.



Mercury "Tug" Electric Tractor is ideally suited to installations requiring quiet, fume-free operations.

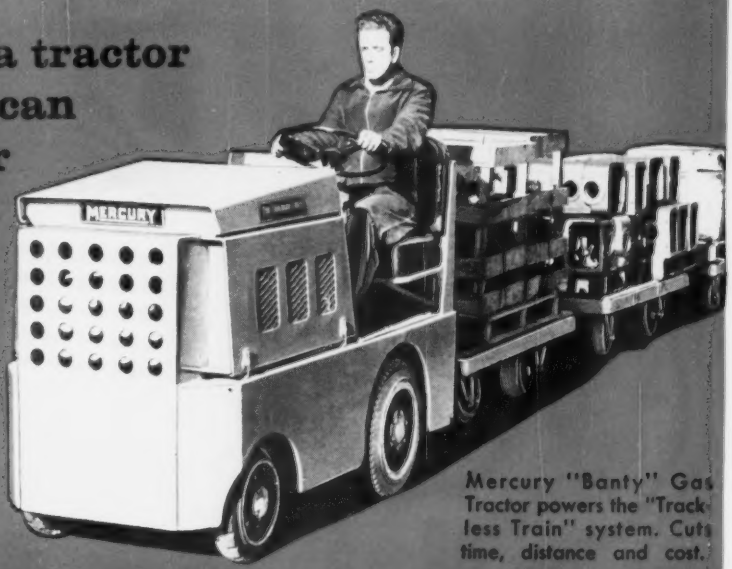


Transporting over 150 ft.? Use Mercury's Fork Truck "Trackless Train"—one man does work of six.

Have you considered . . .

the many ways a tractor (gas or electric) can assure you lower handling costs?

One Tractor! Endless Performance! . . . that's the story of Mercury's remarkable versatility. Large or small, your plant and warehouse will stir with a new kind of cost saving activity—as soon as just one Mercury tractor enters your picture.



Mercury "Banty" Gas Tractor powers the "Trackless Train" system. Cuts time, distance and cost.



Snow Plow (or broom) attachment quickly fitted to Mercury tractor. Keeps travelways clear and safe.



Spotting Freight Cars quickly, easily with Mercury tractor equipped with all-purpose winch.



Plant Tours and Inspection—Mercury "Trackless Train" provides transportation for visitors.

There's a Mercury tractor suited to your needs.
Gas or Electric Models—1000 to 5500 draw bar pull.
ASK FOR A FREE APPRAISAL OF YOUR NEEDS

MERCURY
MANUFACTURING COMPANY

MERCURY

4104 South Halsted Street
Chicago 9, Illinois



MERCURY MANUFACTURING CO.
I am interested in learning how Mercury tractors can profitably fit into my handling needs. Send free literature.

Name _____
Company _____
Address _____
City _____ State _____

Circle No. 1 on Card, Facing Page 49, for more information



Now Baker gives you Balanced Design in an all new 2000 lb. gas fork truck

This newest addition to Baker's outstanding line of gas-powered fork trucks now completes the range of models from 2000 to 7000 lbs. Like its companions it features Baker *Balanced Design,* with all elements coordinated to work together for top efficiency, maximum dependability and longest life.

For greatest operator convenience and safety it features absence of cowl and offset driver position for better visibility . . . recessed seat for lower driver silhouette . . . unobstructed access for mounting from either side . . . effortless automotive steer . . . self-adjusting, self-energizing and self-equalizing hydraulic brakes.

Actual turning radius of this sturdy compact truck is only 61½ inches . . . it operates in 57-inch intersecting aisles. Total lift 130 inches . . . lifting speed 45 FPM, lowering 65 FPM . . . travel speed 8 MPH forward, 7 MPH reverse —all with full load. Mast tilts 10° forward or back.

Baker®
industrial trucks

THE BAKER-RAULANG COMPANY
1216 WEST 80th STREET • CLEVELAND 2, OHIO
A Subsidiary of the Otis Elevator Company

Otis

6G3

Circle No. 2 on Card, Facing Page 49, for more information

CAPACITY

Largest capacity in airfreight enables American to serve shipping executives better than any other airline



A typical 100 lb. shipment from New York to Chicago costs only $7.50 —only $18.80 from Chicago to San Francisco.

When shipping executives use airfreight to simplify distribution problems . . . to be sure of better handling . . . or simply, to cut transit time from days to hours, they specify American Airlines Airfreight. It's their best assurance of fast forwarding, dependable on-time deliveries. That's because American has the space available when and where it's needed most with a combined potential of over 1,000,000 lbs. daily—the greatest capacity in airfreight!

AMERICAN AIRLINES AIRFREIGHT

carries more cargo than any other airline in the world

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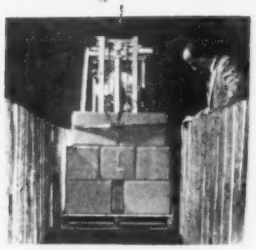
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BPA NBP



THE COVER

Pallets standing on end simulate a narrow aisle for fork lift driver in training program. See Page 30.

DISTRIBUTION AGE

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Accepted as controlled circulation publication at Philadelphia, Pa. Copyright 1957 by Chilton Co. (Inc.). Published monthly. Subscription rates: U. S. $5 per year; Canada, $5.50 per year; foreign Countries, $6 per year. Single Copies 50¢ each, except February Directory Number—$4 per copy.

IO PREMIUM

Conveniently located operating controls

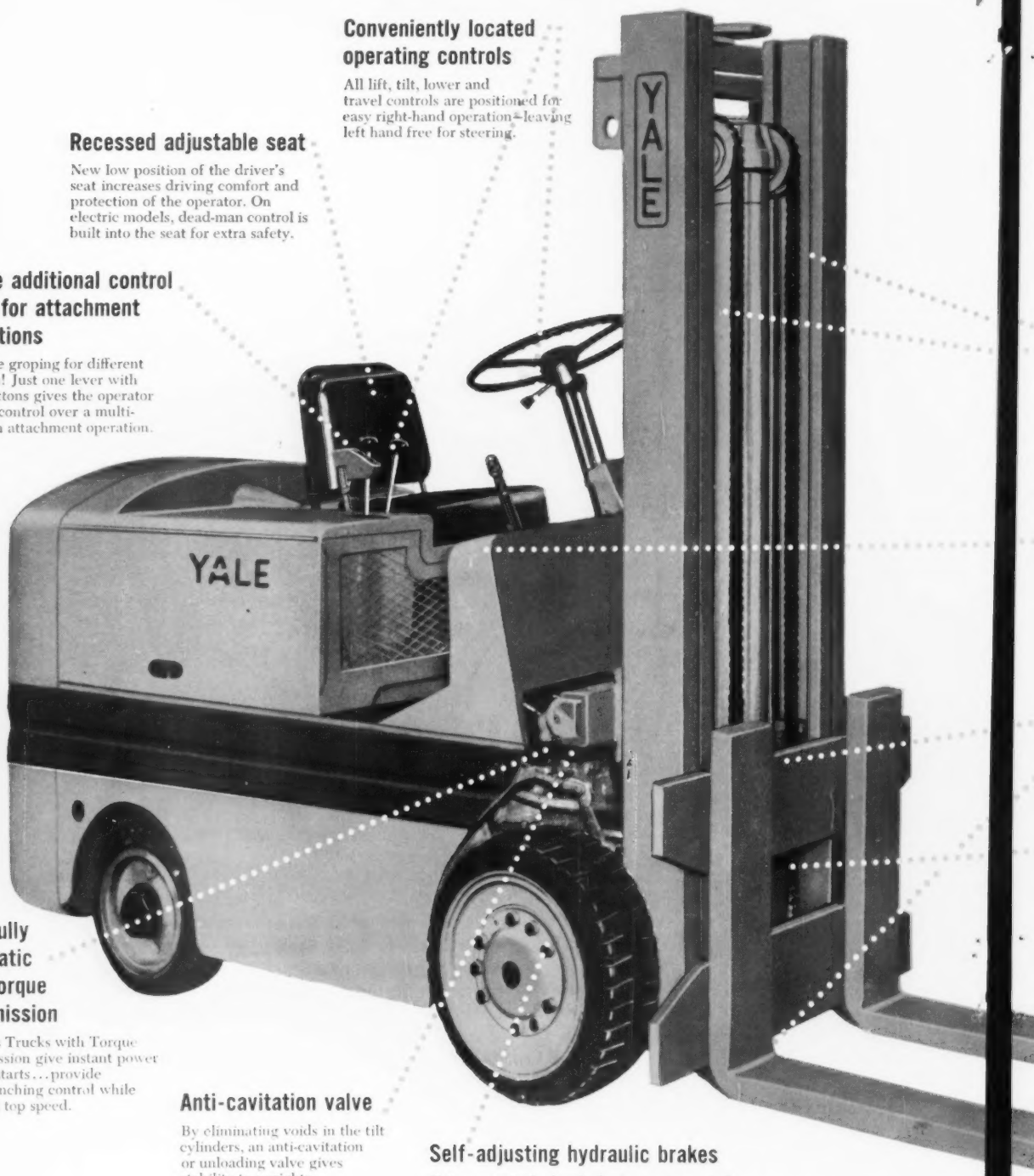
All lift, tilt, lower and travel controls are positioned for easy right-hand operation—leaving left hand free for steering.

Recessed adjustable seat

New low position of the driver's seat increases driving comfort and protection of the operator. On electric models, dead-man control is built into the seat for extra safety.

Single additional control lever for attachment operations

No more groping for different controls! Just one lever with pushbuttons gives the operator instant control over a multi-function attachment operation.



New fully automatic Yale torque transmission

Yale Gas Trucks with Torque Transmission give instant power for fast starts . . . provide perfect inching control while lifting at top speed.

Anti-cavitation valve

By eliminating voids in the tilt cylinders, an anti-cavitation or unloading valve gives stability to uprights . . . eliminates channel sway.

Self-adjusting hydraulic brakes

Extra-capacity hydraulic brakes are mounted directly to each drive wheel for easier, faster stopping without jolting or load damage.

ADVANCEMENTS:

ONLY YALE OFFERS ALL 10 AS STANDARD FEATURES IN A COMPLETE FORK TRUCK LINE

Now—all the "de luxe" Yale truck power and operating improvements of recent years built in as standard features! This is

Yale "Integrated Design"

—the bold new concept in fork truck engineering that offers every industry today's highest level of truck performance.

Improved roller channel construction

Special rolled channels have thick flange sections for extra long life. Hose take-ups for attachments are located *within* the channels to prevent hose damage and increase forward visibility.

Lowered cowl

The new low cowl gives the operator more visibility, yet provides him with adequate protection. All instruments are water-proofed, recessed in the cowl and grouped for easy reading.

Four side-thrust rollers

Two side-thrust rollers on either side of the carriage reduce stress and compensate for off-center loading.

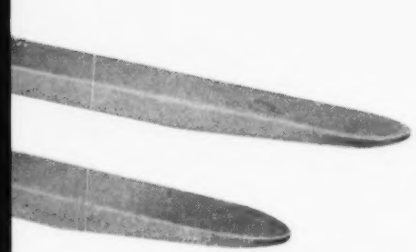
Flow regulator valve

This valve assures smooth lowering control without excessive speed.

Extensive Yale research and field testing proved—truck performance over the long haul can't be of top efficiency unless the truck is *engineered* for it! The result: Yale "Integrated Design"—the incorporation of premium advances as standard features built into a complete line of trucks that meet all the day-in, day-out demands for power, efficiency, safety, versatility and operator comfort—even under the toughest handling conditions.

This new concept means more economical materials handling—in initial truck investment, in operating costs, in maintenance costs. You get the greatest possible truck value for your materials handling dollar. To extend this value even further, Yale "Integrated Design" Trucks have a high degree of interchangeability of parts. Thus, whether you operate a fleet of gasoline trucks, or gasoline and electric trucks of comparable capacities, you need only a limited spare-part inventory.

To meet the great variety of handling needs of every industry, Yale "Integrated Design" offers you a complete line of fork lift trucks: Gas Trucks in capacities of 2,000 to 10,000 lbs. with Yale Torque Transmission, Fluid Coupling or Standard Transmission; Electric Trucks, equipped with Yale's exclusive Magnetic Cam-O-Tactor Controller, in capacities up to 150,000 lbs. For full facts and specifications, write The Yale & Towne Manufacturing Co., Philadelphia 15, Pa., Dept. 21.



YALE*

INDUSTRIAL LIFT TRUCKS AND HOISTS

*REG. U. S. PAT. OFF.

Gas, Electric & LP-Gas Industrial Lift Trucks • Worksavers • Warehousers • Hand Trucks • Hand and Electric Hoists

Circle No. 3 on Card, Facing Page 49, for more information



Build with new, low-cost DEXION Slotted Angle

WORK TABLE

GOODS CART

STORAGE RACK

No drilling or welding! No waste! Just cut DEXION and bolt the frame you want in minutes!

All you need is a DEXION Cutter and a wrench to transform this precision-made, cold-rolled, galvanized steel angle into practical, useful, economical equipment used almost anywhere in your plant, warehouse, store or office.

Scientifically spaced slots and holes make it easy for you to build an infinite variety of structures. And almost anybody can assemble DEXION. There's no confusing array of tricky parts to cope with.

To save time, work and materials, there's nothing like DEXION. You can use it over and over—it never wears out.

DEXION CUTTER

The secret of DEXION'S fast assembly is the special DEXION CUTTER. One quick downstroke gives you a clean, accurate edge.

DEXION PANELS, CASTERS

Use DEXION panels for shelving or tables. Will support heavy weights. Bolt easily to any DEXION frame. Casters make frame movable.

DEXION Slotted Angle is a packaged product, ten pieces to the package, 10 or 12 foot lengths. Two sizes: 3″ x 1½″ x .104″ and 2¼″ x 1½″ x .080″.

Write today for free DEXION folder, dept. DBD-17, DEXION Division, Acme Steel Company, Chicago 27, Illinois, and for the name of your nearest DEXION office or distributor.

ACME STEEL DEXION SLOTTED ANGLE

Circle No. 4 on Card, Facing Page 49, for more information



Now . . . most power of the low-priced 3

New DODGE *PowerGiants*

1957 line-up gives you up to 232 hp.

Dodge tops the low-priced field in V-8 power by a big margin—actually delivers as much as *31% more!* This *extra* power in reserve saves engine strain . . . wear . . . excessive repairs. What's more, Dodge V-8's use *regular* gas, help keep your cost per ton-mile *down!*

Extra payload capacity. You can haul more—up to 73% more in the 300 model pick-up, for example.

Extra handling ease. Exclusive push-button automatic transmission*! Sharpest turning and easiest steering in the industry!

See the new *Power Giant* line-up now at your Dodge dealer's. You'll see features that prove it pays to get your Dodge dealer's deal before you decide on *any* truck.

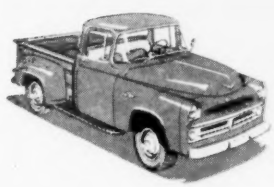
**Available on all low-tonnage and Forward-Control models.*

DODGE meets your hauling needs!

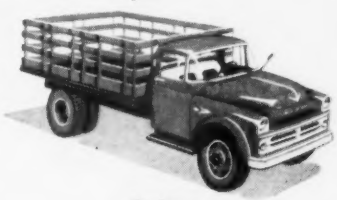
Conv. Models	Max. G.V.W.	Max. G.C.W.	Max. V-8 HP.
100	5,100 lbs.	—	204
200	7,500 lbs.	—	204
300	8,800 lbs.	—	204
400	15,000 lbs.	26,000 lbs.	197
500	18,000 lbs.	32,000 lbs.	197
600	21,000 lbs.	35,000 lbs.	197
700	23,000 lbs.	45,000 lbs.	216
800	25,000 lbs.	55,000 lbs.	222
900	30,000 lbs.	65,000 lbs.	232
Forward-Control Models			
P300	9,000 lbs.	—	204
P500	15,000 lbs.	—	204
C.O.E. Models			
C500	18,000 lbs.	32,000 lbs.	197
C600	21,000 lbs.	35,000 lbs.	197
C700	22,500 lbs.	45,000 lbs.	216
Tandem Models			
T700	32,000 lbs.	45,000 lbs.	216
T800	36,000 lbs.	55,000 lbs.	222
T900	46,000 lbs.	65,000 lbs.	232

DODGE TRUCKS

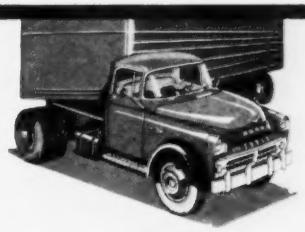
WITH THE *FORWARD* LOOK



Pick-ups



Stakes



Tractors

Circle No. 5 on Card, Facing Page 49, for more information

Why use a $14.25 crate where a $2.50 skid will do? Ship United!



By taking full advantage of United Air Freight economies, you *save on shipping charges.*

For example: Skid and a crate for this 300-lb. electric motor would cost $14.25. Shipped by expedited surface carrier from New York to San Francisco, total cost is $83.49. Shipping time: 4 to 6 days.

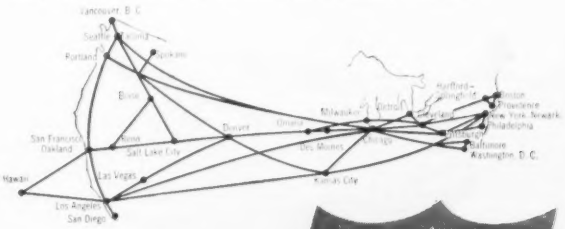
By United Air Freight, the same motor requires skid only ($2.50). Total cost of shipment is $82.30. Shipping time: 24 to 36 hours.

And consider these advantages—DC-7 Mainliner flights and 30,000-lb.-capacity DC-6A Cargoliners coast to coast, Reserved Air Freight (guarantees the space you need on the flight you want), single simplified airbill, other United "firsts."

Examples of United's low Air Freight rates

	per 100 pounds*
CHICAGO to CLEVELAND	$4.78
NEW YORK to DETROIT	$5.90
DENVER to OMAHA	$6.42
SEATTLE to LOS ANGELES	$9.80
PHILADELPHIA to PORTLAND	$24.15
SAN FRANCISCO to BOSTON	$27.00

*These are the rates for many commodities. They are often lower for larger shipments. Rates shown are for information only, are subject to change, and do not include the 3% federal tax on domestic shipments.



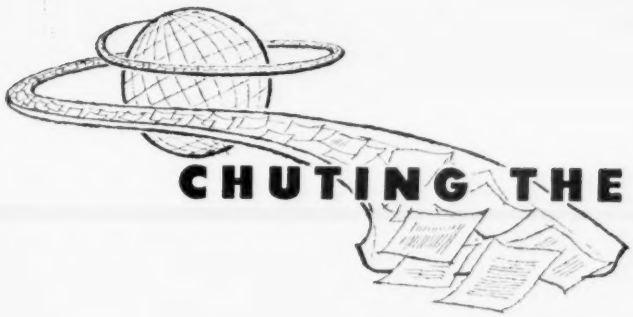


Door-to-door service

SHIP FAST...SHIP SURE...SHIP

UNITED AIR LINES

For service, information, or free Air Freight booklet, call the nearest United Air Lines Representative or write Cargo Sales Division, United Air Lines, 36 South Wabash Avenue, Chicago 3, Illinois.



James F. Rowan Dies, Was Movers' Conference Manager

James F. Rowan, general manager of the Movers' Conference of America and executive secretary



of the Household Goods Carriers' Bureau, died November 25 of a coronary attack. He was 66.

He entered the moving and storage business in 1929 and a year later was appointed executive secretary of the Colorado Transfer and Warehousemen's Association. From 1932 to 1936 he served as executive secretary of the Movers' & Warehousemen's Association of Denver, as executive secretary and treasurer of the Motor Truck Common Carriers' Association, and as secretary-treasurer of the Motor Traffic Protective Association.

From 1934 to 1937 he served as regional vice president of the American Trucking Associations and also served on that group's Executive Board. During National Recovery Act days, Mr. Rowan served as secretary for the district Warehousing Code Authority.

Material Handling Institute Re-elects Raymond President at Annual Meeting in New York

The Material Handling Institute elected officers and four new directors at its Annual Meeting in New York on Dec. 11.

George G. Raymond, Jr., of The Raymond Corp., was re-elected president. R. L. Fairbank, of Towmotor Corp., was elected first vice president, and Eugene Caldwell, of Hyster Co., second vice president.

The four new directors and the product sections they represent are: M. L. Aitken, Robbins & Meyers, Inc., Electric Hoist Product Section; D. H. Bitney, Union Steel Products, Industrial Metal Container Section; Walter C. Stuebing, Jr., Lift Trucks, Inc., Powerized Hand Lift Truck Section, and H. A. Carter, The Geneva Metal Wheel Co., Wheel and Caster Product Section.

Raymond F. Stellar, of the St. Lawrence Seaway Development Corp., spoke at the Annual Luncheon.

DA Consultant Promoted



James A. Sargeant, DA packaging consultant, has been elected vice president of Container Laboratories, Inc. Before joining the firm in 1953, he was chairman of the Army Packaging Board, and chief of the Packaging Section, Army General Staff.

Material Handling Institute Annual Meeting



Chairmen of The Material Handling Institute's Committees assisted with the 1956 review and the 1957 planning seminars conducted at the MHI Annual Meeting in New York last month. Shown (l. to r.) are: George Greenberger, Sage Equipment Co.; C. L. Fell, The American Monorail Co.; M. W. Heinritz, Gould-National Batteries, Inc.; George G. Raymond, Jr., president of MHI; R. L. Fairbank, Towmotor Corp.; D. H. Bitney, Union Steel Products Co.; J. G. Bucuss, Acme Steel Co.; G. B. Davis, Baker-Raulang Co.

Chuting the News . . .

(Continued from Preceding Page)

New Lease and Interchange Regulations Issued by ICC; Effective Date Set for February 1

Effective Feb. 1, motor carrier operations will be governed by a completely new set of regulations on lease and interchange of vehicles. The new regulations were issued by the ICC on Dec. 3.

The Commission's report and order dated Nov. 23 disposed of all matters pending in Ex Parte No. MC-43. It directed that the new rules, which reduce the scope of certain regulations, are to supersede all existing regulations.

The 30-day minimum lease period rule, which was under postponement, was held to be "the very essence of the reforms which are needed." It will be put into effect.

The rules also provide for a written lease, assumption of carrier responsibility for non-owned vehicles, and adequate identification and inspection of equipment, compliance with regulations as to drivers and operating safety, equipment interchange regulations, and a prohibition against rental of equipment to private carriers and shippers.

They will, however, permit contract carriers to rent equipment without drivers to private carriers and shippers, subject to prior approval by the Commission.

—DA—

Railroads Get Rate Increase

Freight rate increases averaging seven per cent in the East and five per cent in the West were authorized by the ICC on Dec. 17. The railroads served notice that they intend to put the higher rates into effect without delay. The new rate schedule is expected to add some $402 million a year to the nation's freight bill. Still pending is the railroad request for an additional 15 per cent increase. Hearings will be conducted this month. The new rate does not affect coal and coke, which was granted an increase of a flat 10 cents per net ton.

—DA—

AST&T Announces Examinations

The next examinations of the American Society of Traffic and Transportation will be conducted Jan. 31 and Feb. 1. Names of centers at which the examination will be given can be secured by writing E. H. Breisacher, Registrar, AST&T, Box 2128, Middle City Station, Philadelphia 3, Pa.

—DA—

The Seventh National Materials Handling Exposition has been scheduled for April 29 through May 3 at Philadelphia's Convention Hall.

Honorary Commodore



The first honorary award as Commodore of the Port of Los Angeles has been awarded to Randolph Sevier (left), president of the Matson Navigation Co. Lloyd A. Menveg, president of the Board of Harbor Commissioners, made the presentation

ALTAPEM Names C. E. Klumb

The Association of Lift Truck and Portable Elevator Manufacturers elected C. E. Klumb, West Bend Equipment Corp., president at Annual Meeting in New York on Dec. 13. George G. Raymond, Jr., of The Raymond Corp., was elected vice president. Klumb succeeds F. J. Dunleavy, of Yale & Towne.

—DA—

Commissioner Owen Clarke, of Yakima, Wash., has been elected chairman of the ICC for the year beginning Jan. 1, 1957. He succeeds Commissioner Anthony F. Arpaia, of New Haven, Conn.

—DA—

New Warehouse in Altoona

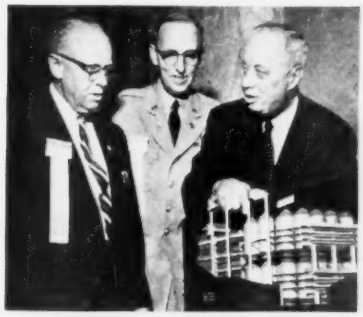


Ward Trucking Co. early last month opened this new in-transit warehouse in Altoona, Pa. It is two city blocks long and includes 116,000 sq ft of space. The building has dock accommodations for simultaneous loading or unloading of 32 freight cars and 52 trucks. The building is served by and has a 1500-ft siding on the Pennsylvania Railroad. The single-story warehouse is of brick, concrete and steel, is fireproof, and boasts temperature and humidity control throughout. Located on a five-acre site, the facility provides 115,000 sq ft of protected outside storage. The building is equipped with the latest in materials handling equipment and has an 18-ft ceiling height

Fifth Clark Award Announced

The Fifth Annual Clark Awards competition has been announced by the American Material Handling Society. The Awards are presented in cooperation with Clark Equipment Co. This year's subject is "Outdoor Materials Handling and Storage." All papers must be postmarked by March 25. Rules may be obtained from AMHS, at 3737 Upton Ave., Toledo 13, Ohio.

Railroads' Defense Role



The National Defense Transportation Association met recently in Salt Lake City to consider railroad facilities in defense transportation. Brig. Gen. Clark Hungerford (right), national president of the Association, discussed carloading problems with W. Cecil Tate (left), regional vice president, and Col. John V. Rathbone, Jr. (center). Model boxcar demonstrates a new training technique developed by Container Laboratories, Inc.

News Briefs

The Port of Los Angeles will start a $101 million, 15-year expansion program early this year that will more than double its cargo handling capacity.

The Materials Management Center of Wayne State University, in Detroit has received another $5,000 contribution from **Evans Products Co.**

The Chesapeake & Ohio Railway has purchased a substantial interest in **Slick Airways, Inc.** The move marks the nation's first air-railroad system.

Crown Corrugated Containers, Inc., and **Specialties Paper Co.** have joined the **Fibre Box Assn.**

Organization of 34 new companies in the past year has brought the total number of barge lines carrying freight on the Mississippi River and the Gulf Intracoastal Waterway systems of inland waterways up to 911, according to the **American Waterways Operators, Inc.**

The Corn Industries Research Foundation has formed a new Transportation Committee to deal with inconsistencies in freight rates.

The Pennsylvania Railroad has purchased the **Calumet Harbor Terminals,** in Chicago, for a reported $1,300,000.

The Board of Directors of **Atlanta Paper Co.** last month voted unanimously to merge with **Mead Corp.**

Globe Woven Belting Co. has joined the **Material Handling Institute.**

Kramer Bros. Freight Line has opened a new office and freight terminal in Wilmington, Del.

Spector Freight System, Inc., has purchased **Schumacher Motor Express** and **Binns Trucking Co.**

Association of American Railroads Names Faricy; Sets Bad Order Car Goal of Three Per Cent

The Association of American Railroads, at its recent Annual Meeting in New York, re-elected William T. Faricy to his 10th consecutive year as president. The group also went on record with the avowed intention of limiting bad order cars to three per cent of ownership.

Other officers re-elected were: T. L. Preston, vice president and general counsel; R. G. May, vice president in charge of operations and maintenance; P. A. Hollar, vice president-assistant to president; R. S. Henry, vice president in charge of public relations; A. R. Seder, vice president in charge of finance, accounting, taxation and valuation; J. E. Monroe, vice president and director of the Bureau of Railway Economics; W. J. Kelly, vice president in charge of traffic; G. S. Prince, general solicitor, and George M. Campbell, secretary-treasurer.

—DA—

Freight Claim Council Seeks Shipper-Receiver Cooperation

The National Freight Claim Council of the ATA, meeting in Miami Beach last month, adopted a plan to promote year around cooperation between motor carriers, shippers, and receivers. A Liaison Committee was named to expedite the program.

Motor carrier members of the Committee are: Dan Gusaef, Branch Motor Express, chairman; James Hasson, Dixie Highway Express; William Carroll, Eastern Express; Charles C. Helms, Johnson Motor Freight Co.; Al Hunter Ohlson Transportation Co., and James McGuckin, of Motor Cargo.

—DA—

New officers of the Traffic Council of the Grading and Road-Making Implement Industry are: D. W. McFarland, Caterpillar Tractor Co., chairman; R. W. Keil, Tractomotive Corp., vice chairman.

—DA—

Paperboard Association Meets

J. R. Kennedy, president of Federal Paperboard Co., was elected president of the National Paperboard Association at that group's Annual Meeting in New York last month. Vice presidents elected were S. G. Olsson, of the Chesapeake Corp. of Virginia, and H. L. Wollenberg, of Longview Fibre Co. M. C. Thiem, secretary of the Fibre Box Association, also was named secretary of the Paperboard group.

—DA—

Conveyor Group Names Walker

J. H. Walker, Fairfield, Engineering Co., is the new president of the Conveyor Equipment Manufacturers Association. He was elected at the group's recent 23rd Annual Meeting, at White Sulphur Springs, W. Va.

Other officers named were: Adrian W. Rich, Fairmont Machinery Co., vice president; H. E. Murken, Hewitt-Robbins, Inc., treasurer, and J. B. Nordholt, Jr., Webster Manufacturing, Inc., secretary.

—DA—

The Middlewest Shipper-Motor Carrier Conference will bring together transportation users, the motor carrier industry, and representatives of the Federal Government at its 17th Regular Meeting, at the Savery Hotel, in Des Moines, Ia., Jan. 8-9.

—DA—

Club Briefs

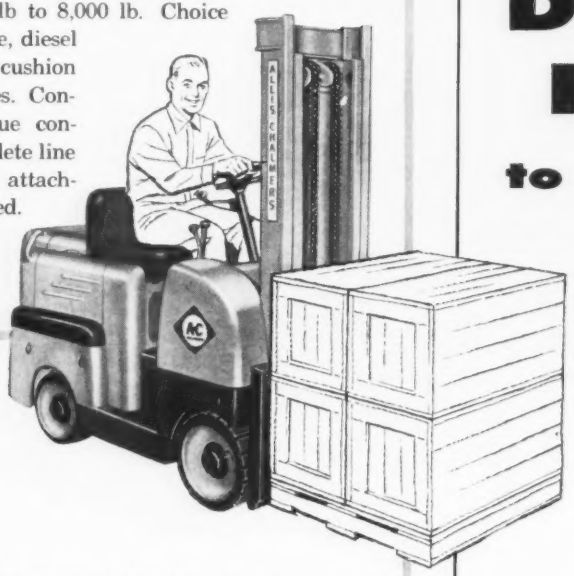
New officers of the **Traffic Club of New York** are: W. J. Honan, president; H. H. Huston, first vice president; E. J. Dean, second vice president; G. H. Burtis, secretary, and A. H. Brown, treasurer.

A. W. Evans, of the Savannah Sugar Refining Corp., has been elected president of the **Southern Traffic League.**

At a meeting in Chicago on Nov. 28, an **Illinois Chapter of the American Society of Traffic and Transportation** was organized. Officers are: E. N. Hansen, chairman; W. A. Ballou, vice chairman; A. N. Moore, secretary, and J. P. Zumwalt, treasurer.

HERE'S Diversified Handling to meet your needs

Fork Trucks — Over half a hundred models and sizes with outstanding operating and service advantages. Capacities range from 2,000 lb to 8,000 lb. Choice of fuels — gasoline, diesel or LP gas. Solid, cushion and pneumatic tires. Conventional or torque converter drive. Complete line of interchangeable attachments to fit the need.



Whether you want to lift material, carry it or pull it, here is Allis-Chalmers equipment to do the job with real savings in time and money. Each unit is suited to a specific type of handling. Each is built "from the drawing board up" to deliver top performance.

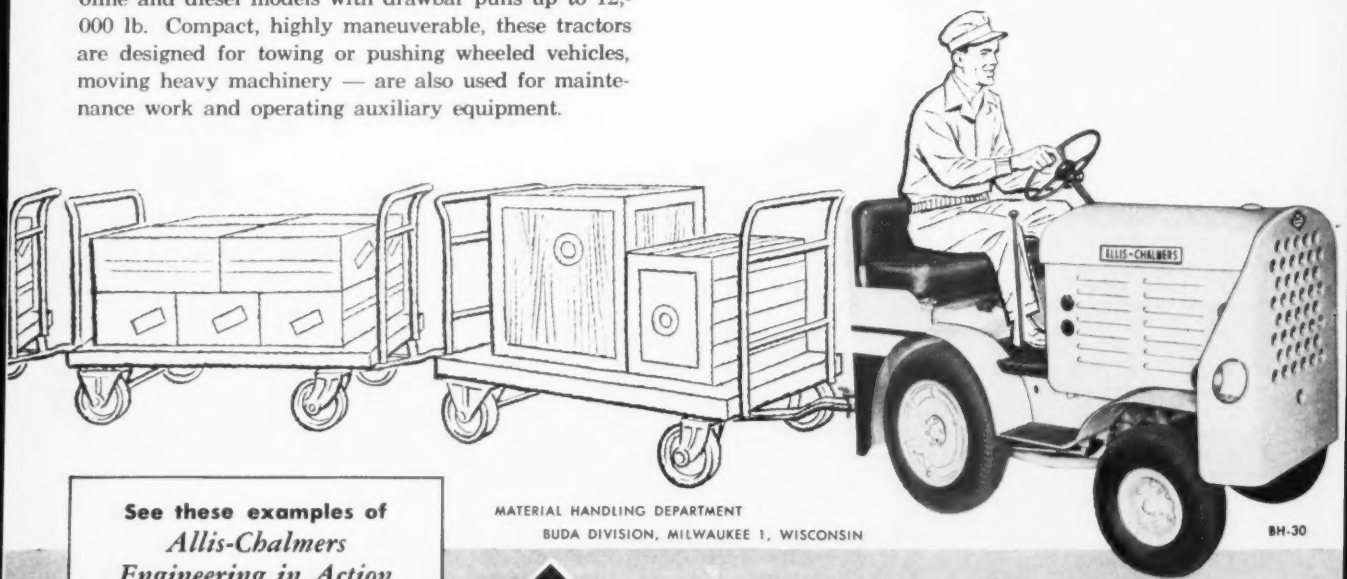
Ask your Allis-Chalmers Material Handling Dealer to show you how these machines will fit your particular handling requirements.

CHORE BOY Platform Trucks — 2,000 and 3,500-lb capacities. Ideal for shuttle and inter-department delivery, pickup and package distribution, other handling. Large deck holds a variety of material. Is suitable for carrying personnel or for mounting welder, air compressor, other equipment.

CHORE BOY is an Allis-Chalmers trademark.



SHOP MULE Industrial Tractors — thirty gasoline and diesel models with drawbar pulls up to 12,000 lb. Compact, highly maneuverable, these tractors are designed for towing or pushing wheeled vehicles, moving heavy machinery — are also used for maintenance work and operating auxiliary equipment.



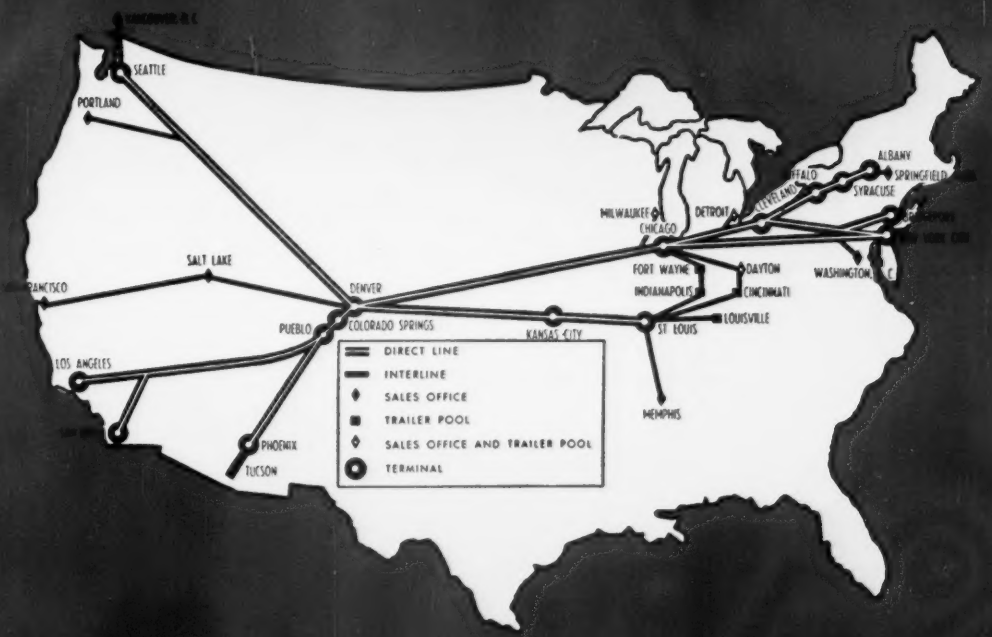
See these examples of *Allis-Chalmers Engineering in Action* **. . . in action against handling and maintenance costs.**

MATERIAL HANDLING DEPARTMENT
BUDA DIVISION, MILWAUKEE 1, WISCONSIN

BH-30

ALLIS-CHALMERS

There's no substitute for SINGLE CARRIER RESPONSIBILITY



ONE CARRIER

1. Handling
2. Tracing
3. Insurance
4. Safety
5. Delivery Information

D-C

The Only COAST-TO-COAST CARRIER

Denver Chicago TRUCKING CO., INC.



...new yardstick for measuring profits!

Towmotor Mass-Handling—moving more units faster, at lower cost—can well be the investment that promises greatest improvement in your future profits, as you face continually rising costs and a shrinking manpower pool.

Integrating Towmotor lift trucks in your departmental operations lets you *supplement* your personnel without adding to your payroll. Enables your men to do a bigger day's work *easier*. Sends them home *fresher*. Permits each one to handle jobs you'd pay a *crew* to do!

Have you seen the new Towmotor lift trucks lately? They offer a wealth of "first-time" features such as:

- Fatigue-free adjustable seating
- Motion-saving "centralized control"
- Maximum free lift that tops all
- No-loss hydraulic lifting action
- Power steering that saves 80% of operator's efforts

Get Bulletin SP-23 on new Towmotor lift trucks from Towmotor Corporation, Cleveland 10, Ohio.

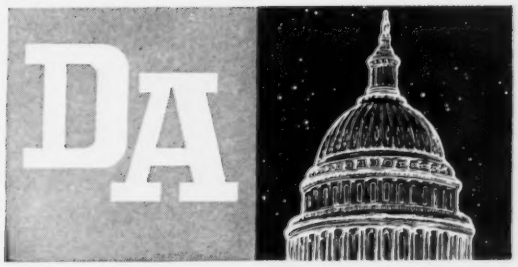
Leaders for 38 years in building Fork Lift Trucks, Tractors and Carriers

TOWMOTOR—GERLINGER
THE ONE-MAN-GANG

Gerlinger Carrier Company, Dallas, Oregon, is a subsidiary of Towmotor Corporation, Cleveland 10, Ohio

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WASHINGTON DA



By Ray M. Stroupe, *Chilton Washington News Bureau*

TRANSPORT TAX REPEAL SOUGHT—Shippers and carriers take to Congress their plea for repeal of the three per cent transportation tax. This is a tax on a necessity, not a luxury, points out the National Industrial Traffic League. It is discriminatory because it covers only for-hire transportation, the Association of American Railroads complains. National Tank Truck Carriers, Inc., say use of the tax creates their "most serious problem" of today.

GOVERNMENT FREIGHT CLAIMS—Principal responsibility of the ICC in handling carriers' claims for more money for moving government freight is emphasized by the U. S. Supreme Court. It decides that the ICC, not the courts, will handle the case if not more than six years have elapsed between the time of the shipments and the filing of a suit. This ruling is expected to improve the government's chances in contesting carriers' claims.

NEED COAL VESSELS—Coal mined in the U. S. is getting to Western Europe too slowly this winter to have much effect on the shortage of fuel there. Ocean shipping is scarce, and in the U. S. more coal hoppers are needed to move the coal to ports. Some relief may be found for the shipping shortage early this year, when American Coal Shipping, Inc., puts into the coal trade the first of 30 government-owned Liberty ships.

BAN SHORT LEASES—Leasing of trucks for less than 30-day periods will be prohibited when the new ICC trip leasing rules take effect Feb. 1. These regulations contain a general ban against rental of trucks to private carriers and shippers, but they make this exception: Contract carriers may rent equipment without drivers to private carriers and shippers, if the ICC has first approved the rental contract.

RENAMED TO ICC—Two members of the ICC, Commissioners Richard F. Mitchell and Laurence K. Walrath, are renominated by President Eisenhower. Commissioner Mitchell, an ICC member since 1947, was chairman of the agency in 1954. Mr. Walrath was sworn in late in March, 1956, to complete the term of Martin K. Elliott. Both the renominees are Democrats.

CALLS TAX HANDICAP—Producers in the Pacific Northwest are suffering a tax handicap in competing with Canadian suppliers for the U. S. East Coast market, Ralph B. Dewey, vice president, Pacific American Steamship Assn., tells a House subcommittee. American producers pay a 30 pct transportation tax on ocean shipments to the East Coast, while the Canadi·· pay none, he notes. Mr. Dewey urges removal o1 the transportation burden.

TEST RAILROAD WRITEOFF PLAN—Arrangements are being worked out by the government to allow the railroads more favorable terms in figuring depreciation on locomotives and other heavy equipment. A proposed plan would permit the roads to write off investment in new locomotives five years earlier than they can now. Expected results would include earlier equipment replacement, more efficient operation, and improved service for shippers.

TRANSPORT SERVICE GAPS FOUND—Shippers should get better service for their transportation dollars, contends ICC Commissioner Howard Freas. He recommends identification of the most economical means of transportation. A privately-backed survey, he thinks, could show areas where traffic can better be moved by one type of carrier than another, the effect of switching to the better form, and the estimated savings.

ASKS ATOMSHIP MOVE—President Eric Rath of TMT Trailer Ferry, Inc., Miami, tells the government he will follow its lead in trailership construction. If the government will build a roll-on-roll-off vessel using atomic power, he says, his firm will build two ships of the same hull design and size (500 to 600 ft long), driven by steam or gas turbines. These two ships would be available to meet national defense needs, he adds.

BORROWING SIZE SET—Latest Small Business Administration definition of a small concern as one that is not dominant in its field affects only government contract placements. Warehousing and trucking firms with annual receipts of $2 million or less will remain eligible to apply for SBA loans. In some cases, trucking companies with annual receipts up to $5 million will still be considered small business.

OPPOSES ICC REPORT—Contention of an ICC examiner that the St. Louis-San Francisco (Frisco) Ry. Co. gained control of the Central of Georgia Ry. Co. illegally is disputed by the Frisco. The Frisco agrees it has bought a majority of Central stock, but denies it controls management of the road. Despite his finding, the examiner recommends that the Frisco and two other lines be permitted to share equally in control of the Central.



a new "super-service" TERMINAL

These new time-saving features speed your Portland LTL shipments:

- Double the number of loading bays. More than 160 freight-carrying units can be spotted at the dock at one time.
- 1,700-foot endless conveyor line moves running carts to proper loading bays, increases speed of less-than-truckload shipments through terminal.
- 70,000-sq.-ft. terminal loading area makes it possible to move 8,600,000 pounds of freight through the terminal in a 24-hour period.
- 40 per cent increase in radio-dispatched pickup and delivery fleet and expanded number of city-based trucks gives shippers faster service from shipping door to terminal.

* Less-than-truckload.
** We like large shipments, too.

Proof again that CF "loves LTL"* is Consolidated Freightways' new terminal in Portland, Oregon, which was *designed* for LTL shipments. It provides you faster, more efficient service on all your LTL shipments. This "super-service" terminal, with more than doubled freight handling capacity, was built to meet your growing needs.

CONSOLIDATED FREIGHTWAYS



Portland's new terminal is typical of CF's modern western facilities.
For the best in motor freight service, route all your shipments** via CF.
Call your local CF terminal for complete information, or write Customer Service Dept., Consolidated Freightways, Portland 8, Oregon, for routing map and list of points served.



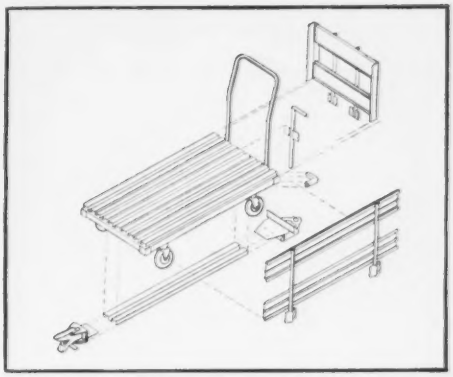
Maximum ease of starting-steering-stopping means that even a single Magcoa/Tobey platform truck will pay for itself in short order.



Dramatic reduction of operating and maintenance costs is the big reason why multi-truck users select Magcoa/Tobey platform trucks . . .



All-aluminum construction makes Magcoa/Tobey platform trucks attractive and clean . . . and easy to keep that way. They don't require painting; don't absorb water, grease or odors.



There's a Magcoa/Tobey aluminum platform truck for your individual needs. Hundreds of standard sizes and styles, with a wide range of accessories, wheel and tire types.

THEY'RE EASIER TO PUSH!

. . . that's why people are switching to Magcoa/Tobey aluminum trucks

Watch which truck your workers grab first when they have a choice —Magcoa/Tobey every time. The reason: Magcoa/Tobey trucks are easier to start, stop and maneuver—easier to operate.

Revolutionary casters — Exclusive Magcoa/Tobey swivel casters give you big, tapered roller bearings at opposite ends of a king-size spindle. You get the ultimate in starting, stopping and maneuvering ease . . . even under full load. These are *real* swivel casters . . . not a simple ball bearing sandwiched between two plates held together by a bolt.

Add to this the *light weight* of glistening, easy-to-keep-clean aluminum and you have some of the reasons why your workers choose Magcoa/Tobey—they're easier to push . . . easier to handle.

That cuts your truck cost to the bone. For the important truck cost is the *cost of moving the truck!* On the average, if you can save as little as 5% of truck operating cost through increased efficiency, you will save $200 per man, *per year*, every year!

Standard trucks for special jobs . . . another Magcoa/Tobey advantage. Magcoa/Tobey offers over 100 styles and sizes for every type job from handling food to handling greasy industrial products. Because of this wide variety, you can get specialized equipment for your specialized jobs . . . *at standard equipment prices.*

An illustrated data file tells the whole platform truck story. It also shows standard multi-deck trucks, baggage carts, accessories and other features which every truck user ought to know about. Use the coupon below for your free copy.

MAGNESIUM COMPANY OF AMERICA

TOBEY ALUMINUM DIVISION

East Chicago 3, Indiana

Representatives in Principal Cities

☐ Please send Magcoa/Tobey Data File

Name and title _____

Company _____

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City-Zone-State _____

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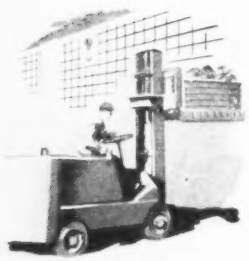
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Being interviewed is H. A. Fuggiti, Acting Senior Development Engineer

"Here's where the heavy slugs of power come from"

At the Exide Laboratories — **Reporter:** Just exactly what part of the battery is that, Mr. Fuggiti?



Fuggiti: This is the Exide-Ironclad positive plate. And in any battery, power reserve is governed by positive plate area.

Reporter: Then do you mean that Exide-Ironclad Batteries have *more* positive plate area?

Fuggiti: Exactly. You can see that here. The cylindrical power tubes are arranged in a row. So the semicircular sides give an effective plate area one-third more than the plate size.

Reporter: How does that increase power reserve?

Fuggiti: Because there's a bigger working surface of battery plate exposed to the electrolyte. Power response is faster.

Reporter: What does this mean in battery performance?

Fuggiti: It means the battery can provide power to spare for peak power loads as well as a dependable source for continuous loads.

Reporter: Obviously this is an important feature of the Exide-Ironclad Batteries.

Fuggiti: Yes it is, but it's just one of many engineering details that contribute to their long life and high capacity.

Note to battery users: Whenever you order heavy duty batteries or the equipment that requires them, be sure to specify Exide-Ironclad. For detailed bulletin, write Exide Industrial Division, The Electric Storage Battery Co., Philadelphia 2, Pa.

THE ELECTRIC STORAGE BATTERY COMPANY Exide®

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Men in the News . . .

Traffic

Ross E. Jones, Jr. — elected vice president in charge of distribution, H. J. Heinz Co., Pittsburgh.

Edward G. Aiken, Jr. — appointed manager, rates & tariffs, Caloric Appliance Corp., Topton, Pa.

Francis P. Ierardi—new traffic and distribution manager, B. T. Babbitt, Inc., New York.



Frank E. Juranek — appointed general traffic manager, Clark Equipment Co., Battle Creek, Mich.

A. L. Smith — appointed traffic manager, Eastern Div., Tidewater Oil Co., New York.

Paul P. Foley—becomes new assistant general traffic manager, Godfrey L. Cabot, Inc., Boston.

H. C. Lechner — appointed traffic manager, **J. T. Banks**—assistant traffic manager, D-X Sunray Oil Co., Tulsa, Okla.

Stuart F. Malcolm—newly appointed export manager for agricultural machinery, road building equipment, and construction machinery, A. J. Alsdorf Corp., Chicago.

A. R. Kinkae—named plant traffic representative at the Berwick, Pa., plant, American Car and Foundry Div., ACF Industries, Inc.

Transportation—Air

KLM Royal Dutch Airlines, New York City, announces the appointment of six senior vice presidents: **J. A. Bach**—operations; **V. H. L. Dubourcq**—field organization; **T. M. van Erp**—planning; **A. H. van Gelder**—finance; **J. C. van der Kloot**—marketing; **J. Luymes** — engineering and maintenance.

B. W. Bolton—appointed superintendent cargo sales, Southwest Division in Los Angeles, United Air Lines.

Dennis Crimmins — new assistant cargo sales manager, Scandinavian Airlines System, Jamaica, N. Y.

—Highway

Charles I. Bohlen—appointed director of engineering, Strick Trailers, Philadelphia.

E. G. Ogden—new vice president, Equipment Development, Consolidated Freightways, Inc. His headquarters will be in Portland, Ore.

Clare L. Hitchcock—new Transtar truck sales manager, Studebaker-Packard Corp., South Bend, Ind.

C. Lawrence Schneider—heads new Fleet Sales Office in Chicago, Fruehauf Trailer Co. He is executive vice president.

George C. McManis — appointed Long Island City branch manager, Trailmobile, Inc. **Robert F. Pfeiffer**—promoted to plant manager of Trailmobile's Longview, Tex., plant.

Brig. Gen. Lasher Receives Promotion



Army Brig. Gen. E. C. R. Lasher (left), was promoted to the rank of major general at ceremonies in Washington recently. The second star was presented to the transportation specialist by Maj. Gen. Paul F. Yount (right), Army chief of transportation. Members of the Military Traffic Management Agency, which Gen. Lasher heads, are (left to right) Air Force Col. John Kilgore, Army Col. Ray Cox, and Navy Capt. Willard C. Johnson. Army Col. George Barnes, deputy executive director, was absent

Coming Events

Jan. 5-10—National Frozen Food Convention, Eden Roc and Fontainebleau Hotels, Miami Beach, Fla.

Jan. 8-25—Ninth Institute of Industrial Transportation and Traffic Management, The American University, Washington, D. C.

Jan. 14-18—Society of Automotive Engineers, Annual Meeting, Sheraton-Cadillac and Statler Hotels, Detroit.

Jan. 15-17—Caster & Floor Truck Mfrs. Assn. Meeting, New Weston Hotel, New York.

Jan. 19-23—Truck-Trailer Mfrs. Assn., Annual Convention, Hotel Del Coronado, Coronado, Calif.

Jan. 20-24—The Training Conference, The Refrigeration Research Foundation and National Assn. Refrigerated Warehouses, Purdue University, Lafayette, Ind.

Jan. 22—Southwestern Industrial Traffic League, San Antonio, Tex.

Jan. 23-24—Executive Committee, American Trucking Assn., ATA Bldg., Washington, D. C.

Jan. 27-29—National Wooden Pallet Mfg. Assn., 10th Semi-Annual Meeting, Hollywood Beach Hotel, Hollywood, Fla.

Jan. 27-30—Associated Equipment Distributors, 38th Annual Meeting, Conrad Hilton Hotel and International Amphitheater, Chicago.

Jan. 30-Feb. 1—Private Truck Council of America, Inc., 18th Annual Convention, The Sheraton-Jefferson Hotel, St. Louis.

Jan. 30-Feb.1—National Wooden Box Assn., 58th Annual Meeting, Boca Raton Hotel and Club, Boca Raton, Fla.

Feb. 16-19—National Canners' Assn. & Canning Machinery and Supplies Assn., 50th Anniversary Convention & Exhibit, Conrad Hilton Hotel, Chicago.

Mar. 8-10—Missouri Warehousemen's Assn., Inc., Spring Meeting, Jefferson City, Mo.

Mar. 18-21—The Society of the Plastics Industry, Inc., Annual National Conference and Pacific Coast Plastics Exposition, Hotel Biltmore and Shrine Exposition Hall, Los Angeles.

Mar. 18-22—National Furniture Warehousemen's Assn., 36th Annual Convention, Biltmore Hotel, Palm Beach, Fla.

Mar. 31-Apr. 4—Folding Paper Box Assn. of America, Annual Meeting, Drake Hotel, Chicago.

Apr. 1-5—American Warehousemen's Assn., 66th Annual Convention, Chalfonte-Haddon Hall Hotel, Atlantic City, N. J.

Apr. 8-11—American Management Assn., 26th National Packaging Exposition, International Amphitheater, Chicago.

Apr. 9—The Material Handling Institute Spring Membership & Directors Meetings, Edgewater Beach Hotel, Chicago.

Apr. 16—Assn. of Lift Truck & Portable Elevator Mfrs., Spring Meeting, Edgewater Beach Hotel, Chicago.

Shippers Advisory Boards

Jan. 9-10—Atlantic States, Washington, D. C.

Jan. 9-10—Midwest, Chicago, Ill.

Jan. 22-24—Southwest, San Antonio, Tex.

Jan. 30-31—Northwest, St. Paul, Minn.

Shipper-Motor Carrier Conference

Jan. 8-9—Middlewest Shipper-Motor Carrier Conference, 17th Regular Meeting, Savery Hotel, Des Moines, Iowa.



Working docks of a rail-truck terminal, a powerful Clarklift scoots up a ramp. Said management: "Best demonstration of a fork truck we've seen yet. Even more impressed are the men who drive the trucks . . . and to us that's important."

HERE'S WHAT CHICAGO THINKS OF THE NEW CLARKLIFT

Over 35,000 freight cars roll into Chicago daily; 12,000 trucks deliver to 500 terminals. Within this market place of the nation, thousands of companies are pitting smart business sense against the problem of moving materials at the lowest possible cost. Already many of these companies are benefiting from the new performance standards possible with Clarklift.

Clarklift is exciting news to men whose business is to wrestle with costs. Said one plant engineer: "We know how to *manufacture* on a close margin; we must *handle* material as profitably. From what I've seen, this new Clarklift truck of yours is going to make news about cutting this overhead burden." A company president: "My engineers thought so highly of this Clark truck's possibilities that they asked me to watch a demonstration. At first glance its styling impressed me . . . but after seeing it work, I am doubly impressed by its efficiency of operation."

These are men who are responsible for controlling one of the world's largest concentrations of materials movement. Many of Chicago's progressive companies *know* the Clarklift. How about you? For details call your local Clark dealer, or write us direct.

Industrial Truck Division
CLARK EQUIPMENT COMPANY
Battle Creek 11, Michigan

CLARK® EQUIPMENT

CLARKLIFT is a trademark of Clark Equipment Company

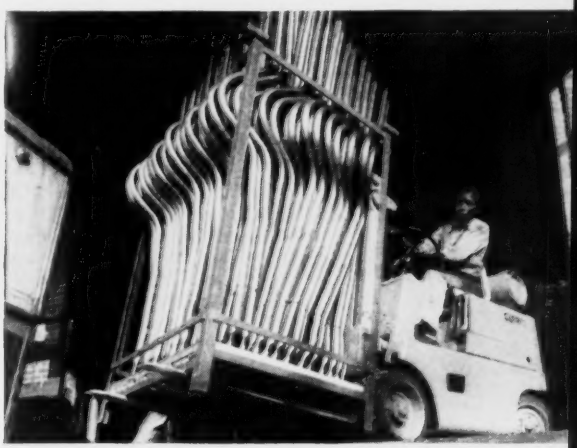
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Clean air cools the engine. Clarklift's exclusive air-scoops work seat high . . . don't pull air off the floor, vacuum-cleaner fashion. Five internal filters and a special radiator screen keep working parts clean—ridding industry of a major problem. Said one foreman: "Biggest problem of a foundry is keeping grit out of working equipment. This Clarklift is the answer."



"This truck is a snap—most accessible I've ever seen. Swing back the hood and you've got the whole motor in front of you. So far I've only done some preventive maintenance, but here's the gimmick; with this truck it's easy."



"Close quarter inching, sensitive brakes, good visibility, economy of operation, driver comfort . . . these are important factors which we considered when we bought our Clarklifts," said a plant manager. "We're more than satisfied—are ordering two more."

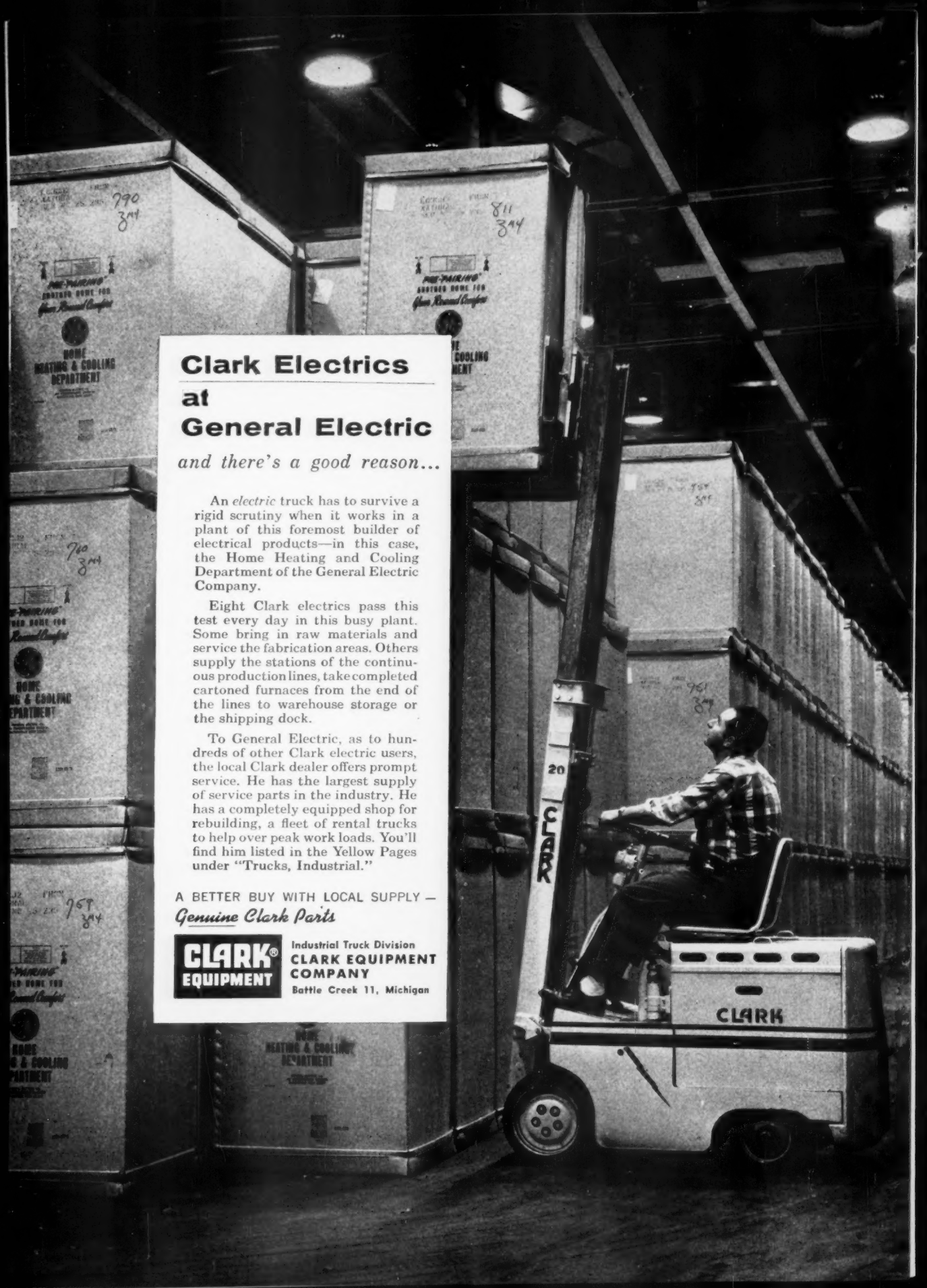


"Drives like my car. From the size of this truck you might think it was hard to handle. With power brakes, power steering and no clutch pedal—it's a cinch."



"After driving fork trucks for 11 years, I can *feel* the difference. This truck is easier to drive, more comfortable, a lot easier on me. It's not only easier, but I'm getting more work done."

Circle No. 9 on Card, Facing Page 49, for more information



Clark Electrics at General Electric

and there's a good reason...

An *electric* truck has to survive a rigid scrutiny when it works in a plant of this foremost builder of electrical products—in this case, the Home Heating and Cooling Department of the General Electric Company.

Eight Clark electrics pass this test every day in this busy plant. Some bring in raw materials and service the fabrication areas. Others supply the stations of the continuous production lines, take completed cartoned furnaces from the end of the lines to warehouse storage or the shipping dock.

To General Electric, as to hundreds of other Clark electric users, the local Clark dealer offers prompt service. He has the largest supply of service parts in the industry. He has a completely equipped shop for rebuilding, a fleet of rental trucks to help over peak work loads. You'll find him listed in the Yellow Pages under "Trucks, Industrial."

A BETTER BUY WITH LOCAL SUPPLY —
Genuine Clark Parts

CLARK® EQUIPMENT

Industrial Truck Division
CLARK EQUIPMENT COMPANY
Battle Creek 11, Michigan

On the Line—



Help Wanted

A traffic manager with badly bruised feelings asks how he might win management's cooperation in eliminating or reducing demurrage.

His plant is a thousand miles from the home office. He has four bosses: The GTM (at the home office), a product of World War II manpower shortage; the plant's general manager, a VP with whom the TM has a frightfully formal relationship; the production manager, a big, blustering bull; and the plant's head bookkeeper, a mousy, whiny character with a passion for statistics.

Periodically, the TM brings the demurrage problem to management's attention; most often to the person most responsible—the production manager. The TM has offered him several solutions but they have been brushed aside.

Monthly, the bookkeeper prods the TM in approximately these terms:

"These charges increase our shipping costs by 1.2 per cent. They add .009 cents to product cost, 5 per cent to traffic accounting time, and are equivalent to a year's salaries of two of your assistants."

Monthly, the bookkeeper works up fresh statistics and sends them to the home office. There, they are relayed to the GTM, who usually sends the TM a short note:

"The controller is bothering me again about your demurrages. Suggest you discuss this matter with Mr. (Production Manager)."

Once, the TM summoned enough courage to send a memorandum to the plant's general manager. It brought this response:

"Thank you for calling my attention to the demurrage charges. I have a satisfactory explanation from Mr. (Production Manager), who says the problem will be solved when we build a new wing near the rail siding."

Commenting on the above remarks, the TM said, "I can't get the bookkeeper off my back. He thinks the railroad should ignore demurrage for 'such a good customer.' The fact is the railroad is most generous.

"The GTM has had many letters from me but never has given me any real help.

"As for Mr. (Production Manager), all he ever says is, 'Aw, forget it!'

"Our general manager apparently agrees with the production manager. As for that new wing, they've been talking about it for years.

"My solution is faster loading and unloading of the cars, which is being handled manually now. We need two fork trucks and a pallet truck for the yard, and a short length of powered conveyor in the plant. I checked this with our freight solicitor and a fork truck salesman. They agree with me.

"The cost could be amortized in about 18 months, because the equipment could be put to use in the plant. In fact, in time, we could pay for it all with our demurrage charges.

"The problem has been with us for over a year. Now the railroad is threatening to embargo our cars. Do you think that any of your traffic manager readers could give me a suggestion on how to get management to cooperate?"

Well, readers, can you?

A. W. Greene
EDITOR

Yakkety Yak

A warehouseman was faced with a problem of handling certain perishable goods. "Go over to O'Hara's and ask Mike how to do it," he said to his son. "He's got an account exactly like ours."

. . . "You're not serious?"

. . . "Yes, son," replied the old gentleman. "For years the O'Haras have been bragging that they're smarter than us. Go, lad. His big mouth will blab all he knows just to prove how stupid I am."

THIEVES: A group of carriers were panning a railroad VP. A trucker cut in, "You've got Mac all wrong. I know. I worked for him.

. . . "In the 30s he had to lay me off, but promised to get me another job. He took me to his traffic club for lunch, and introduced me to a number of carrier executives as a key man on his staff.

. . . After the lunch, he chuckled and said, "Those thieves will delight in stealing you away from me. Take whichever job you want, but pick some trucker. They're the only ones making money now."

. . . He was right. "A week later, a trucker 'stole' me."

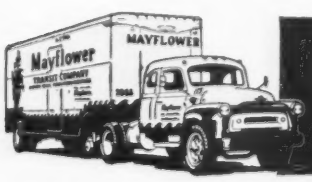


That's what scores of Mayflower customers tell us everyday, and that's the opinion expressed by Mr. F. J. N. of Flushing, New York about his move there from Ohio recently:

"We were very pleased with Mayflower. As we are transferred about every 2 years it means a lot to know our household goods will get good care."

Your employees can have this kind of service, too. That's why a Mayflower move is such a good move for them, for you, and for your company.

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NATION-WIDE
FURNITURE MOVERS

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LETTERS

TO THE EDITOR

Coal Shipping

To The Editor:

Please furnish complete information on American Coal Shipping, Inc., as mentioned in the Washington DA report in your November issue (p. 35).

Emanuel Hirsh
Trenton Marine Terminals, Inc.
Trenton, N. J.

The firm known as American Coal Shipping, Inc., which sometimes calls itself ACS, was organized in June, 1956, with three groups of stockholders. One group represents three rail lines—the Chesapeake & Ohio, the Norfolk & Western, and the Virginian —that haul coal to the port area of Hampton Roads, Va. A second represents the United Mine Workers, and the third group serves seven coal mine operators and producers. This outfit has the aim of boosting exports of American coal, particularly to Western Europe.

Capital stock authorized for the company is $50 million. The headquarters office is at 17 State Street, New York. Principal officers are Richard L. Bowditch, chairman of the Board, who also is president of C. H. Sprague Co.; William C. Brewer, president; and Joseph Moody, secretary-treasurer. One of the members of the board is Walter Tuohy, president of the C. & O. Another is the UMW president, John L. Lewis.

The company expects to get the first of 30 chartered Liberty ships into service early in 1957. ACS also has bought control of the A. H. Bull Steamship Co., New York, and will use some of the freighters thus acquired for coal shipments. — The Editor.

Overseas Packing

To The Editor:

Would you please refer me to any articles, publications, books or other sources of material which would help me in the preparation of articles for overseas shipments, that is for export. I am particularly interested in the waterproofing and other preparation necessary for small manufactured articles, up to 50 lb and for manufactured articles of various other sizes, including tractors and farm equipment.

R. H. Suddath
President
Suddath Moving & Storage Co.
Jacksonville 2, Fla.

Copies of Federal Packaging Specifications can be purchased for a few cents each from General Service Administration, Business Service Center, Region 3, 7th and D Streets S.W., Washington 25, D. C.

Preservation, Packaging and Packing of Military Supplies and equip-

ment is available at $1.75 a copy from the Superintendent of Documents, U. S. Government Printing Office, Washington 25, D. C.

The American Management Association's "Management Bookshelf" includes a number of publications that should prove helpful. Titles and prices are: A Basic Guide to Preparing Packaging Specifications, $3.75; Stepping Up Efficiency in Packaging, Materials Handling, and Shipping, Packaging Series No. 47, $1.75; Know Your Packaging Materials, Packaging Series No. 46, $1.75; and Better Export Packaging—Improved Loading, Packaging Series No. 23, 75c. All of these books and pamphlets can be secured through the American Management Association, 1515 Broadway, New York 36, N. Y.

The Small Business Administration, Washington 25, D. C., offers a free pamphlet entitled Packaging Pointers for Government Contractors. This release is No. 30 in the SBA's series of Management Aids for Small Businesses.—The Editor.

Warehouse Space

To The Editor:

I would like information and literature related to the subject, "Warehousing—Renting Space vs Construction of Private Facilities."

Edwin A. Koziol
Plant Superintendent
The Glidden Co.
San Francisco 7, Calif.

A limited supply of reprints of a recent DA article entitled, "So You Want to Build a Warehouse" still are available. Copies may be obtained by addressing this office on your company letterhead. The December issue of DA also contained an article with some bearing on the subject—"Radial Distribution via Public Warehousing," p. 31.—The Editor.

Piggy-Back

To The Editor:

Recently our firm had occasion to make inquiries about piggy-back service to and from various points throughout the nation. We found the information we needed, but not without considerable digging. Since that time I have been informed that your magazine has published a Piggy-Back Routing Guide. Are copies of the Guide available?

W. H. Emilius
J. A. Emilius' Sons
Philadelphia, Pa.

DISTRIBUTION AGE *has published its DA Piggy-Back Routing Guide in three editions. The latest edition, in completely revised form, appears in this issue beginning on Page 57.*

The new Guide lists some 2,000 U. S. and Canadian points to and from which trailer-on-flatcar service is available. It also shows which railroad or railroads offer service to and from each individual point.

The new DA Piggy-Back Routing Guide has been reprinted and single copies are available at 25¢ each. Prices on reprints in bulk lots will be furnished upon request. — The Editor

Gain Extra Storage



Raymond Truck with load measures almost 7-ft. long, yet compact size plus patented* off-set drive wheel with 200° turning arc enables it to right-angle tier in 6-ft. wide aisle.

Loads may be tiered as high as 152" with the 4,000 lb. capacity, telescopic-type.

In Every Aisle . . .

with RAYMOND Electric TIERING TRUCK

THESE DAYS it's the warehouse with narrow aisles that makes most efficient use of space. And here's the truck that made 6-ft. aisles possible . . . the time-tested Raymond Tiering Truck. Warehouses which once used counter-weighted trucks have gained 4 to 6 ft. per aisle, increasing total storage capacity as much as 50%.

YOUR WAREHOUSE can make similar savings in space with a Raymond Truck. Available in 2,000; 3,000; and 4,000 lb. capacities. Lightweight for safe operation on low-capacity elevators, floors. 51" maximum free lift for tiering in low-ceiling areas without increasing overall height. May be purchased or leased over 1 to 3-year periods.



*PATENT NO. 2,564,002

MODEL E45T
Telescopic model, 4,000 lb. capacity.

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Please send Bulletin on Raymond Tiering Truck. I am interested in:

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☐ Have your representative call.

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Finishing touch to a perfect move...

Exceptional follow-through at destination
makes GREYVAN PREFERRED for nationwide moving

Household Goods
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It's the finish that counts *most* in making transferred personnel happy with their move, thereby enabling them to fit into their new surroundings so quickly and easily it almost seems as if they had never moved.

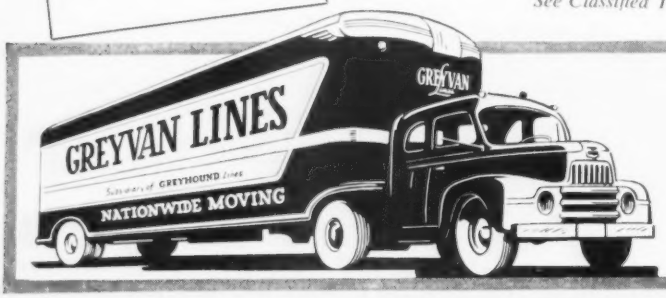
That's one of the reasons why so many traffic managers – and the people they transfer – prefer Greyvan service.

It's reassuring to know that a skilled Greyvan representative will be available at *destination* to see that delivery instructions are followed to the letter – handle any special service problems that may occur – make an on-the-spot settlement of almost any claim that may arise.

Give *your* personnel the benefit of Greyvan's long experience, modern equipment, advanced methods, and *personal interest*. Call your local Greyvan representative for complete information.

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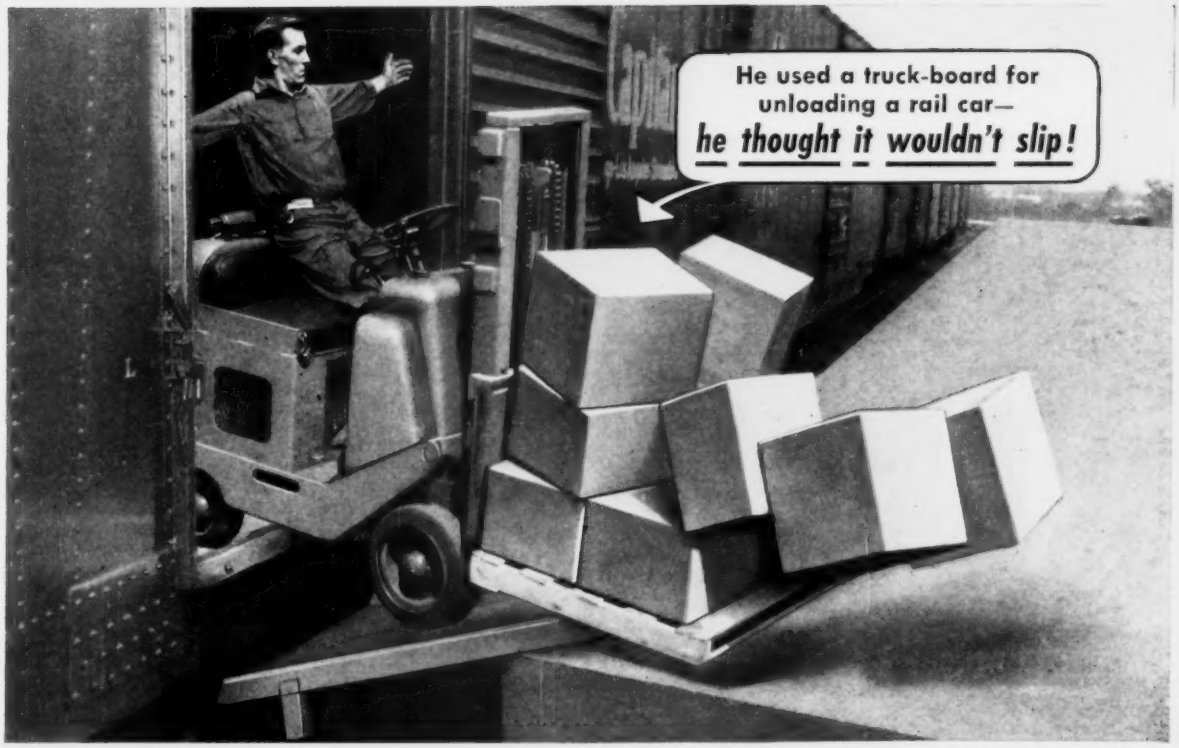
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Greyvan is one of America's leading long-distance moving companies . . . provides dependable, responsible, efficient service by skilled, courteous personnel, using America's most modern moving methods and equipment.





New! Eliminate board-slippage accidents like this with Magcoa Adjustable SPAN-LOCKS*



THE RIGHT WAY—Magcoa's new SPAN-LOCKS anchor Dockboard in position you want—prevent board slippage.



PUSH . . . it locks and stays locked.



PULL . . . it releases for re-positioning.

Easy-to-adjust SPAN-LOCKS secure Dockboard in exact position you want . . . regardless of distance between dock and rail car . . . or dock and truck

Here's positive protection against board slippage on your loading dock . . . protection against personnel injuries, against costly damage to loads and equipment.

Adjustable to a fraction of an inch, Magcoa *Span-Locks* hold your Dockboard in the exact position you want for safe, efficient loading . . . dock-to-truck, dock-to-car or car-to-car.

Magcoa Span-Locks permit you to use a single Dockboard for both truck loading and rail loading; permit you to use a single Dockboard at both a straight rail track and a curved rail track. In all cases where *Span-Locks* are recommended they increase efficiency while eliminating dangerous board slippage.

Revolutionary Design—*Span-Locks* are the ultimate in simplicity of operation. *Push* . . . and the *Span-Lock* grabs tight and holds tight under the severest of loading conditions. *Pull* . . . and it unlocks for re-positioning.

Rugged Field Testing—*Span-Locks* have proved their ruggedness and usefulness in 15 months of brutal punishment on customer docks. Many customers actually refused to surrender the test units because they were so much more satisfactory than the adjustment pins formerly used.

If you have a loading dock . . . or plan to build one . . . we suggest you investigate Magcoa *Span-Locks* and Magcoa lightweight, heavy-duty Magnesium Dockboards.

A new folder shows a dozen ways in which *Span-Locks* can assure safer, smoother loading. Use the coupon.

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The man to call for dependable freight service . . also information about available industrial sites

UNION PACIFIC RAILROAD

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JANUARY, 1957 . . . Vol. 56, No. 1

Part I

This is the first of a series of three articles on reciprocal switching. In subsequent articles Mr. Erickson will discuss switching limits, public team tracks and private tracks, charges, and absorption.

Reciprocal Switching—Shipper's Privilege

A study of principles of interstate commerce law governing a railroad's obligation to deliver carload freight on industrial track at competitive points

By Ben W. Erickson

THE RIGHT of a shipper to ship via any railroad line serving a terminal area, although located on the line of another railroad, often is referred to as the "reciprocal switching privilege."

It is considered a privilege because it affords the shipper additional transportation service. It is reciprocal, however, only insofar as the various carriers accord the same privilege to shippers located on their respective railroads.

Reciprocity is only one of many, and perhaps more important, factors affecting this switching practice. It should be referred to, more correctly, as connection terminal switching. However, the term reciprocal switching has come to mean the broad practice of switching cars in a terminal. The switch is made between an industry and a connection with another railroad where the other carrier has the line haul.

An illustration will serve as the best definition. Acme Industries, at Bigtown, has a private track that has a switch connection with the AB&C Railroad. The plant is served by the AB&C. The AB&C will deliver carload freight on this track. It also will accept for forwarding carload freight loaded on this track when the AB&C hauls the car into or out of Bigtown.

Bigtown also is served by two other railroads, the DE&F and XY&Z. These railroads enter Bigtown and have switch connections with and serve many industries within the city. They do not, however, serve the Acme Industries plant. The DE&F and XY&Z do have physical connections with the AB&C in Bigtown. They transfer, or interchange, carloads of freight and empty cars to and from the AB&C at those connecting points.

The AB&C will accept carloads of freight from either the DE&F or the XY&Z and deliver them to the siding of Acme Industries. They will do this even though the AB&C could have handled the car into Bigtown over its own line had it been so routed. For performing this service it makes a switching charge. The connecting railroad, DE&F or XY&Z, pays and absorbs the AB&C switching charge. Acme Industries thus is able to ship its carload freight via any of the railroads serving Bigtown—at the same tariff rate.

The privilege of reciprocal switching is granted only as the switching road and the line-haul carrier act mutually to extend it. This must be based on:

1. Willingness of the switching road to switch carload freight from or to the industry, and to establish a reasonable charge for this service.

2. Willingness of the connecting railroad performing the line-haul to pay and absorb the switching carrier's switching charge, so that the industry need only pay the line-haul rate.

The connection switching privilege is real and a terminal becomes open to an industry only when both of these actions take place. This fact must be remembered as the analysis is made.

Connection terminal switching on a reciprocal basis is common, but by no means prevalent. In the South and Midwest practically all common points have reciprocal switching. The situation in Eastern Trunk Line territory, however, is highly selective. At several large and important terminals carriers will protect the lowest tariff rate to industries on its lines only if it receives the line haul.

Early in the regulation of railroads the use of carrier terminals was much more restricted than now. The present generally open status of terminals did not always exist. Many carriers refused to open industry tracks served by their lines to their competitors. The present situation is the result of a long, hard battle before commissions and courts.

Two conditions must be met before the ICC may order a switch

(*Please Turn to Page* 72)

How to Drive a Fork Truck In 10 Easy Lessons

Wide use of materials handling equipment launches company into program which trains new drivers, corrects mistakes of experienced men, and aids supervision

FORK-TRUCK accident frequency is steadily decreasing at the Eastman Kodak Co. plant, Rochester, N. Y., thanks to a program for training drivers.

E. D. Happ, of the Safety Department, and A. C. More, of the Training Department, realizing the wide use of lift-trucks in their organization, felt that a training program was needed. New drivers should be taught the use of the materials handling equipment while experienced drivers could receive detailed instruction.

Both men agreed that to achieve the desired results, supervisors should receive instruction and training comparable to that given experienced drivers.

Happ and More guided the development of the program. Specific program needs were submitted to management for review.

It was felt that training should be centralized and a practice driving area provided. Other recommendations to management were hours of training, and estimated cost of the whole program.

Approved by management, the program was outlined to departmental representatives for their comments.

The committee then refined the course material. Three new members were added to the Safety Department staff as instructors for classrooms and driving range.



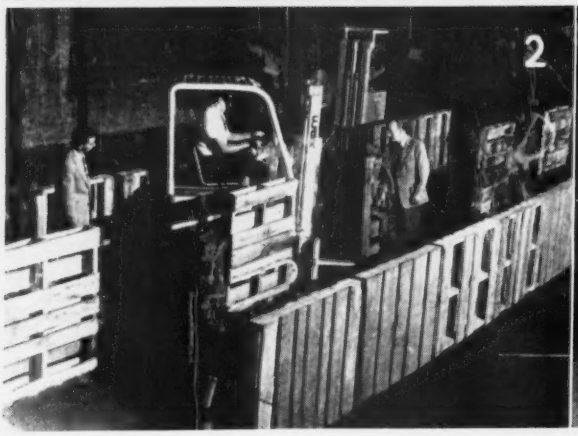




Fig. 1: Classroom sessions are discussion lecture type. Classes of six trainees are instructed by one of three staff members from the Safety Department employed just to carry on the program of fork-lift training

The Safety Department obtained three fork trucks. Three thousand square feet of floor space became a driving range.

The final program consists of a 16-hour course for experienced operators and a 32-hour course for new personnel. This time is spent in discussion type lectures, visual aids, and quizzes. These, along with printed materials distributed by instructors, aid in holding interest. Classes consist of six trainees.

Material in Course

Material covered in the ten sessions for new operators is as follows:

Session 1—The trainee is introduced to the purpose of the course, simple operating procedures, and daily checks which he must make. Time is allowed for simple maneuvering with the truck on the range.

Session 2—A quiz on Session 1 is followed by considerable practice on the obstacle course.

Session 3—Load limits, striking force, comparative cost of fork trucks, types of trucks used in the plants, truck limitations and adaptions are discussed.

Session 4—Drivers now discuss various problems involved in handling palletized material.

Session 5—This session presents the safe and efficient practices to be followed in truck and trailer loading and unloading operations.

Session 6—Trainees, at this time, receive instruction on handling materials where freight cars are involved.

Session 7—Single pallet storing is introduced. The instructor explains where materials should not be placed and how they are placed in proper areas.

Session 8—This session is crucial for many operators since it introduces methods and problems in tiering and stacking of palletized materials. Special aptitude is required to master this work.

Session 9—The trainee is given his final examination on the driving range. During the classroom instruction, elevator operators, pallet patterns and crossing railroads are discussed.

Session 10—A discussion is held on the operators responsibility in preventive maintenance.

Most of this material is condensed to five sessions for experienced operators, who, being familiar with truck operation and terminology, can learn faster.

Discussion of the results of quizzes is encouraged. Trainees are informed that the quiz is to assure the instructor that he has succeeded in putting across the course. Trainees are graded only on the results of their driving range performance.

Problem driving sessions deal with situations which arise under actual driving conditions. The driver is asked to solve these problems.

Obstacle course driving sessions help develop skill and confidence. Bad habits of experienced drivers are replaced with good practices.

New drivers, of course, spend a much greater time on the range than seasoned drivers. Two instructors are present at all times for verbal coaching and individual instruction whenever an improper procedure is seen.

A prerequisite to entering the course is that the operator be physically right for the job. A medical check is given to discover field of vision, reaction, timing, distance judgment, and physical handicaps which may reduce an operator's ability under stress and strain.

Drivers who complete the course are licensed so that only authorized persons operate trucks. This license is issued only after proof of ability on the job and request from the worker's foreman.

An added gain from this program has been the training of 24 members of the Fire Department staff. In the event of an emergency, these men are able to move valuable materials with fork trucks.

Through the program, 80 supervisors and 400 experienced drivers have been retrained. About 80 new drivers have been instructed and given employment in the plant.

Knowledge of safe driving methods is spreading beyond the classroom. •

Fig. 2: A trainee is drilled on the pivot point by weaving fork lift between rows of upended pallets on driving range
Fig. 3: Overloading is demonstrated to class through use of actual equipment. Class study also deals with problem

Fig. 4: The final driving test is given at the ninth session of the course. Licensing, however, follows job experience
Fig. 5: To teach freight car loading and unloading, pallets are used to simulate sides. The lifts pass over dock board

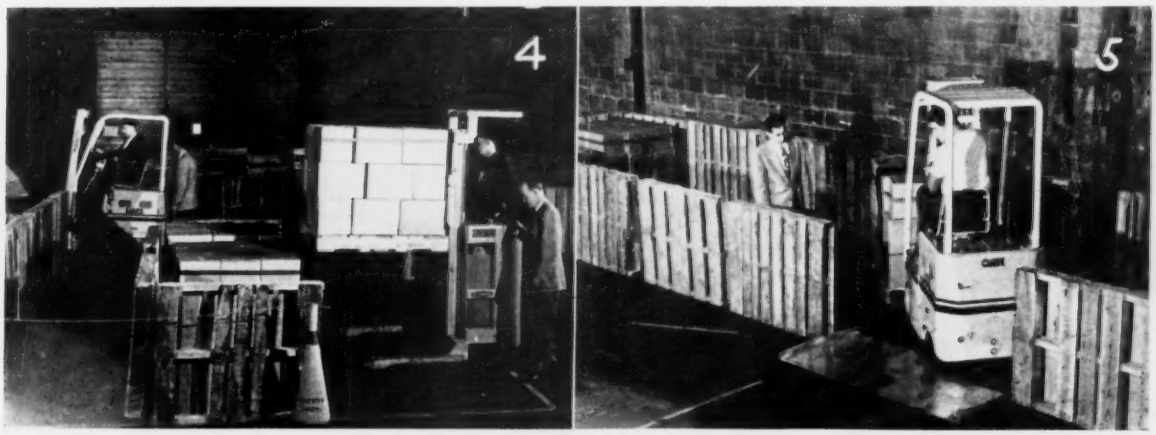




Fig. 1: The basic stacking rack design. Racks can be decked one on top of the other for shipping use

Mechanized handling, based on the unit-load principle, is slowly gaining industry-wide acceptance. There is room for improvement, however, with perhaps the greatest potential in the physical distribution field—including the movement of goods from producer to user

The Age of Appreciation in Materials Handling

By Walter E. Schirmer,
Vice President Clark Equipment Co.

THE NEXT decade in materials handling will be regarded as the "Age of Appreciation." Concepts and techniques existing today finally will be grasped and understood in their full importance by industry and the military.

Established principles of materials handling still will apply at this future date. Additional principles will be discovered. Most of today's materials handling problems will have been solved, but new problems constantly will arise.

Only a few people today understand that time is the raw material of everything. Men engaged in materials handling recognize time management as the true basis of measuring efficiency. As more and more materials handling practices and transportation methods are mechanized, the more those in position of authority will recognize and use time management as the true basis of measuring the management of men, materials, machines, and money.



Fig. 2: Racks are modified for unitized handling of engine assemblies. Racks speed loading and unloading of highway trailers by 100 per cent

Today's mechanized materials handling systems follow the precept of time management by moving more materials in the same period of time. This achieves the first goal of lower handling costs. Reducing or eliminating product damage frequently is a primary objective of cost reduction, through better handling and packaging techniques.

Unit-Load Handling

The unit-load principle simply demands that materials should be handled in the most efficient maximum size unit load. A unit load is a collection of one or more in-

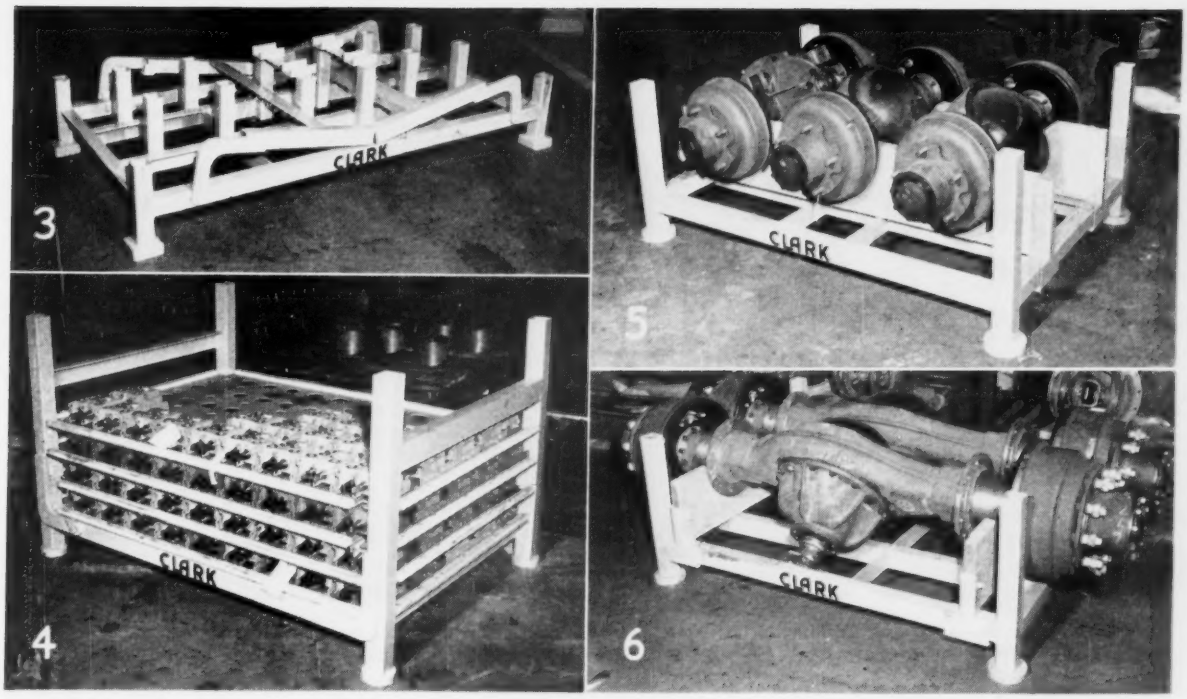


Fig. 3: Engine rack with supporting posts folded down for return journey

Fig. 4: Rack and tray pack principle used for unit-loading hydraulic valves

Fig. 5: Basic rack modified for handling axles carries three assemblies

Fig. 6: Same rack is equipped to handle two extra-large axle assemblies

dividual pieces into one mass, whose bulk and/or weight cannot be handled by one man without benefit of a mechanical aid.

Many devices are employed to gain the benefits of unit-load handling: Pallets, pallet boxes, skids, tote boxes, racks, containers, trailers, baskets, wheelbarrows, etc. Generally pallets and fork trucks are looked upon as the backbone of the unit-load systems.

Unit-load handling has been put to great use in intra-plant movement of materials. Equipment used to facilitate the assembly of goods into unit loads has been held captive. The unit-load principle has been put to use mainly only when material arrives on the receiving dock. It receives its greatest application in handling work in process and storage. By and large, thus far the principle is cast aside at the shipping dock and the process reverts to manual handling.

The unit-load principle has its greatest potential in the movement of goods from vendor to customer, producer to user.

Unitization is fairly easily accomplished as long as the equipment remains captive within a particular facility. Complications arise when materials and goods enter the area of movement from producer to user. Then it requires a systems concept which can be used in the vendor's facility by common carriers used in transportation, and at the customer's plant.

Producer to User

The automotive companies were among the first to employ the unit load principle in moving parts from the manufacturing plant to the assembly plants. They were able to overcome the barriers of container cost because of the volume of materials, the relatively high cost per ton of material, and the enormous savings in handling labor.

Great strides have been made in some areas of food processing. On the West Coast a successful interchange of pallets through a clearing house has been accomplished. It permits free use of pallets for moving fruits and produce from orchards and fields to canning plants. Once the canning season is completed, the pallets are sorted and returned to their rightful owners. A small fee is charged for this service. For this system to work, the pallets must be all the same size. This has been accomplished through concerted action by all factors in the food processing business. Pallets have been standardized at 42 x 48 in.

Transportation Bottleneck

The question has been asked, "why does unitization stop at the shipping dock?" Complete use of the unitization principle in our transportation system has been limited, probably because of one or more of the following reasons:

1. Freight charges on the containers used for assembling unit loads:

Freight tariffs probably have

(Please Turn Page)

Editor's Note: Mr. Schirmer's remarks were presented originally in a paper entitled "Unitization in Industry" at the recent Joint Military-Industry Packaging and Materials Handling Symposium, in Washington.





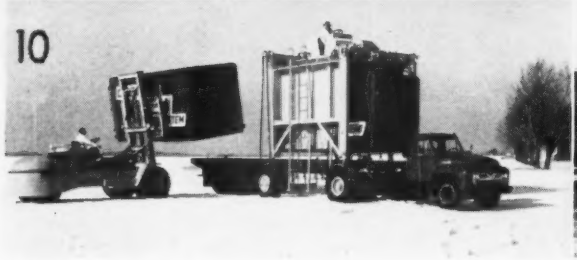




Fig. 7: Rack load of LPG tanks is handled by fork truck. Rack accommodates four sized tanks, can be towed by tractor
Fig. 8: Straddle or end-loading type carrier is used to move racks on long hauls. This system is both faster and less costly
Fig. 9: U. S. Rubber Co. sealed bin containers in 70, 300, and 370 cu ft capacities are used for handling bulk materials
Fig. 10: Clark Mobilvan system features automatic locking mechanism which fastens van body to flat car or to trailer
Fig. 11: Variations of the van, which can be handled by fork truck, include van tanks, van flats, and van hoppers



The Age of Appreciation . . .

(Continued from Preceding Page)

been the greatest drawback. Frequently the same freight charge has been applied to the container as to the product it is carrying.

2. The cost of returning the containers and no assurance the container would be returned:

Again, in recent years, special tariff rates have been set up on a limited geographical area. This liberalization, however, does not permit complete use of unitization, but restricts it to those shippers of products which have a high dollar-to-weight ratio.

3. Very frequently the maximum permissible unitizing cost is not sufficient to cover the cost of the minimum unitizing requirements:

There are a number of products being shipped today that cannot afford more than 1½¢ per cwt unitizing costs. Yet this amount is not sufficient to provide the minimum requirements to withstand the rigors of transportation by common carrier.

4. Lack of proper handling equipment at freight interchange terminals.

5. Lack of standard-sized containers has had some drawback, but not as serious as some of the economic factors involved:

A complete nation-wide system of shipping and handling materials in unit loads has been held back by the continued use of old freight cars and cars of variable dimensions. This is diminishing as new cars are designed and put into service. Most new freight cars and highway trailers will accommodate 40 x 48 in. pallets.

Shipping in unit loads has been limited to those who can ship in carload or truckload lots, and do not have to utilize the full cube to meet minimum weight requirements required by tariff rates. In most cases it has been limited to those who own their own trucking fleet or own or lease railroad cars. Unit-load shipping has been practiced by those shippers interested in their own costs. Usually they are not much concerned whether the receiver can unload it in the same fashion. In some cases, users are plagued with such

(*Please Turn to Page* 78)

Don't Overtax Yourself— Year-Round Planning Cuts Taxes

Trading in equipment, method for figuring depreciation, and form of business organization can affect amount of tax bill and determine when funds will be available for improvements

LONG-RANGE tax planning in today's business world of high tax rates no longer is "big business foolishness."

Last-minute tax worrying with no year-round tax thinking can erase sizable savings for small businesses when it comes time to file tax returns.

For example, assume that a business replaced an air conditioner. After shopping around, it was found that the old unit could be sold to a private party for $500 or traded in for a $500 allowance. That seemed like six-of-one-half-a-dozen-of-another.

So, without thinking—or worrying—about tax matters, the old air conditioner was traded in.

To prove how a seemingly simple business decision can affect future taxes, assume further that the air conditioner had originally cost $2500 and the firm had taken $1000 in depreciation on it. This meant its cost for tax purposes was $1500.

Loss Either Way

Regardless of whether the old air conditioner was traded-in or sold, the business would lose $1000.

The deals still are equal. But, with a trade-in, how much of the $1000 loss is tax deductible? None.

All that is permitted is the addition of this amount to the cost of the new unit. Eventually the company will receive tax credit for the loss in the form of slightly higher depreciation deductions.

Loss Deducted

On the other hand, if the company had made a bona fide sale separate from the purchase of the new air conditioner, there would have been a $1000 loss. This could be claimed as a loss deduction on a tax return and used to offset regular income.

It is not always true that a loss deduction on the tax return is worth twice as much as future depreciation. But, a general rule for deciding when to sell and when to trade-in is: Sell "loss" property to obtain a deduction, and trade "profit" property. The latter avoids the tax which must be paid on any profit realized from sale of an asset.

It is possible to sell into a capital gains tax or trade the company out of a loss deduction if depreciation is not figured correctly. This is a matter to be discussed with a competent tax advisor.

He can explain the advantages and disadvantages of the various methods used to compute depreciation. Method of figuring depreciation should be suited to business needs.

For example, a certified public accountant, asked whether a straight-line or declining balance method should be used on a new asset, might ask: What are the company cash requirements and what are profits likely to be?

If expansion is planned or additional cash will be needed in the next few years, it might be better to use the new declining balance method.

Depreciation Speeded

This method speeds up or increases depreciation rates. It starts a chain reaction which will retain cash in the business. This is because, when depreciation rates are increased, allowable depreciation deductions on tax returns are increased.

The amount that may be written-off the first year is twice what it would be under the straight-line method. By applying a $1000 instead of a $500 depreciation deduction against regular income, the business reduces taxes. Cash that does not have to be paid out in federal taxes can be retained in the business for expansion.

It seems, however, that all good things eventually come to an end. While in the first year the declining balance depreciation rate may be double that of straight-line, this differential diminishes in succeeding years until declining bal-

(*Please Turn to Page* 75)

Editor's Note: This article is based on information supplied by the American Institute of Accountants and has been checked for technical accuracy by the Internal Revenue Service.



Four of these 8 x 5 x 5½-ft aluminum vans handle an average household goods load of 6000 lb

Household Goods *Take to the Air*



Two-man crew loads van on flat-bed truck. Pads and appliance covers are furnished by air line

WITH a promise of coast-to-coast moving in from four to five days' time, a number of furniture warehousemen have contracted with Slick Airways, Inc., to establish the nation's first regularly scheduled movement of household goods by air. The service, to be known as Sky Van, begins Jan. 7.

Key to the Sky Van operation is a collapsible aluminum container. The container is 8 ft long, 5 ft wide, and 5½ ft. high. Its base is elevated for fork truck handling. Approximately four vans will handle an aver-

Completed load leaves customer's home for airport terminal, where vans are unloaded and loaded on plane by fork truck



age household, or about a 6,000-lb shipment.

How it Works

Here's how the plan works:

1. The day before the move, the warehouse sends its regular packing and crating crews to the customer's house to pack dishes, mirrors, etc.

2. On moving day, the air line delivers the empty vans to the local warehouse handling the move. The warehouse loads four or five vans on a flat-bed truck and goes to the home of the customer.

3. Household effects are loaded directly into the van, on the flat-bed.

4. The flat-bed takes the loaded vans to the airport terminal, where they are unloaded by fork lifts.

5. When the plane arrives, the vans are loaded by the air line and flown to their destination.

6. Upon arrival, the vans are unloaded and put on a flat-bed supplied by the destination mover.

7. The destination mover carries the vans directly to the house of the customer.

8. The mover takes the vans back to his warehouse, where the airline picks them up.

The airline furnishes the vans, furniture pads, and appliance and piano covers.

The program calls for a minimum of 2,000 lb per shipment, and a minimum distance of 1,000 miles. Regular services promise coast-to-coast delivery in four or five days; points up to 2,000 miles, three or four-day delivery. On expedited service at a higher rate, the line will give overnight service to any city in the United States.

Preliminary packing at the residence will be based on ICC Tariff 47A or 53B. Packing revenue will be divided on a percentage basis by the origin and the destination movers. For loading and delivering the vans, Slick will pay each mover a fee based on weight. Cost of air transportation is determined by a CAB tariff schedule.

Regularly scheduled flights of household goods promised on a four to five day basis for coast-to-coast moves. System uses 8 x 5 x 5½-ft aluminum vans for door-to-door service

At destination airport the vans are loaded directly onto the destination mover's flat-bed and transported to customer's home or temporary storage



Cost Comparison

From airport to airport, the rate applying between cities is less than surface van rates, according to the airline. However, Sky Van tariff sets forth the overall charge from origin to destination, including the origin mover and destination mover's charges. In all, the rates from door-to-door will be approximately $1 to $2 per cwt higher than van service. The company claims the advantage is in time saved—and the savings on hotel or other accommodations, meals, etc.

A sample cost for shipping 6,000 lb from New York to Los Angeles, comparing the cost with surface van, is listed below:

SKY VAN (4 to 5 days time)	
Preliminary Packing	$ 100.00
Transportation ($19 cwt)	1,140.00
Transit Protection ($6,000)	10.50
Cost of Maintaining Family of Four (3 days @ $40 daily)	120.00
Total Cost	$1,370.50

SURFACE VAN (12 to 14 days time)	
Preliminary Packing	$ 100.00
Transportation ($17.25 cwt)	1,035.00
Transit Protection ($6,000)	30.00
Cost of Maintaining Family of Four (12 days @ $40 daily)	480.00
Total Cost	$1,645.00

Participating Firms

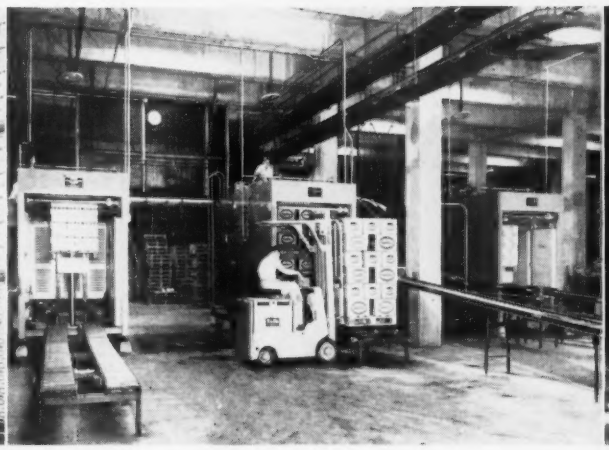
Warehouse companies signing the original contract are all NFWA members.

Off-point service to cities not listed or cities not served by Slick also will be served. In this case, the intrastate rate from the city of pickup to the airport city will be added to the basic rate.

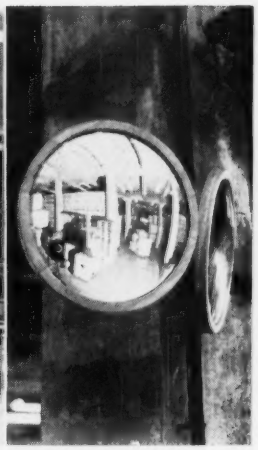
Arrangements for storage-in-transit, insurance, claims, etc., are included in the contract. •



Palletization and high-lift fork truck permit use of air rights



Conveyor lines from a bottle house across the street feed three automatic palletizers in distribution center



Mirrors permit operators to observe corners

Palletization Eases Growing

Physical distribution keeps pace with mushrooming sales in this mechanized

SEVERE growing pains—in the form of shipping and handling problems — have been eliminated at Baltimore's Gunther Brewing Co. Construction of a tailor-made distribution center provided the cure.

The building was erected around a specific materials handling plan. The new handling system features palletization and mechanization. Four principal improvements have been noted:

1. Reduced handling costs;
2. Increased production efficiency;
3. Faster delivery to distributors and customers;
4. Increased safety, to both the product and handling personnel.

The Problem

As production facilities were expanded to meet growing sales, bottlenecks in handling and shipping operations placed a drain on the firm's profits.

Premium beer was being bottled and shipped on premium time. Shipping areas were crowded and unsafe. Full advantage could not be taken of air rights. Expensive outside processing of both empties and fulls was used. Gunther figures showed that it cost the brewery 5¢ per case when outside handling was involved. Such handling ran into thousands of cases each month.

This was only a small part of the problem. Loading of customer and company trucks was a tedious, time consuming process. Delivery trucks were tied up for excessively long periods of time at the loading dock while other trucks waited in line for their turn at the dock. Location of the loading dock itself presented a safety hazard. While being loaded, trucks extended out into the street, blocking it to all but one-way traffic.

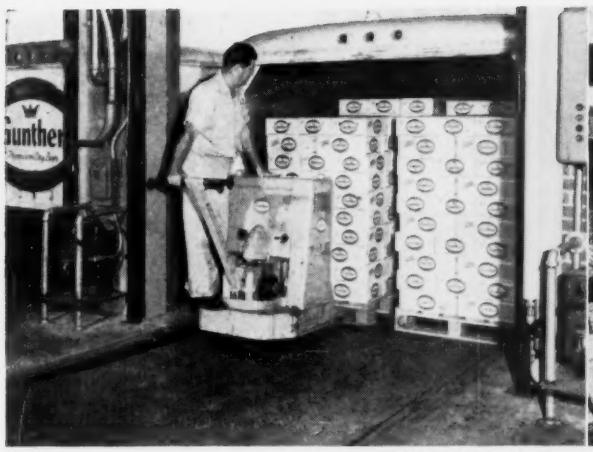
The most serious problem was in the bottle house, which grew at a rapid rate—but not fast enough to keep pace with the rest of the brewery. Shipping, storage and receiving facilities were jammed into the same building. Mechanical handling beyond the most simple devices was an impossibility.

A single beer case was handled as many as eight or nine different times during the trip from the returning beer truck, through the bottle house, to the delivery truck.

A survey of the handling problem was made, and a plan of action drawn. The basic plan called for the creation of a distribution center on one level, where Gunther's products could be received, stored, shipped, and handled with speed and efficiency.

Gunther purchased the assorted properties that comprised an entire city block located diagonally across the street from the bottle house. This block provided the space for a 60,000-sq ft distribution center.

Removing the shipping, storage and receiving functions from the bottle house made possible more efficient use of bottle house facili-



Low-lift pallet trucks and adjustable docks have produced a 75 per cent time saving in truck-trailer loading



Yale truck transports pallet loads of beer to conveyor lines in loading area, where palletization cuts confusion

Pains

distribution center



Fork truck feeds telescopic conveyors, which are used for loading all city delivery trucks

ties. The brewery was able to install a new, high-speed bottling line. It operates at twice the speed of the old line.

A complete materials handling plan was charted. Machinery, storage areas, and other equipment were positioned on the floor plan before the architects were asked to wrap a building around the system.

The loading dock is set well back from the street. A broad apron facilitates off-street loading. This solved the traffic hazard present at the old dock.

Handling System

Cases of beer arrive at the distribution center by one of five different conveyors. They carry the beer from the bottle house through enclosed bridges above the adjacent streets. The conveyor lines feed three automatic palletizers. The lines are set-up so that they can bypass the palletizers in event of breakdown.

(*Please Turn to Page* 110)



Off-street loading at covered dock has eliminated traffic hazards and time lost in waiting



Old system shows cramped quarters, expensive rehandling, and conditions leading to damage

Around-the-Clock Radio Speeds Pickup and Delivery

Mobile, two-way radio in this truck terminal permits more efficient use of highway equipment, cuts operating costs

TWO-WAY radio has provided a two-fold advantage in our Charlotte, N. C., terminal operation. Use of a mobile radio network, linking trucks and terminal on a 24-hour-a-day basis has speeded pickup and delivery service. In addition, it permits unified control of an extensive and rather far-flung operation.

Radio was introduced at the Charlotte terminal on an experimental basis. It was so successful that similar installations have been made in Detroit and Winston-Salem. Plans call for radio installations in still more major terminals.

Faster pickup and delivery tells only part of the story. Other advantages are:

1. More efficient terminal operation and lower operating costs. This is particularly true in the handling of less-truckload freight.
2. Better customer service through prompt handling of emergency shipments. (Backtracking for missed orders has been eliminated.)
3. Better control and more flexible use of on-the-road trucks. The same number of trucks in service before radio was installed now handles 25 to 30 per cent more tonnage.
4. Saving in telephone expense.

These tangible advantages are augmented by one less tangible, but perhaps just as important. Two-way radio has become a powerful sales tool in the Charlotte operation. Salesmen, who can promise faster pickup and delivery, report better customer acceptance.

Charlotte was selected for Roadway's test radio installation because it is the hub of the motor freight industry and is the major distribution point of the Carolinas. Some 54 Class I carriers are located in the Charlotte area.

The System

Thirty-watt mobile radio units were installed in eight straight trucks and two tractors. A 60-watt base station was set up in the terminal office. Remote control units are located on the dispatcher's

Dispatcher, with remote control unit on his desk, is in constant contact with all drivers within a 40-mile radius



Two-way system permits drivers to keep the terminal informed as to pickup and delivery schedule, emergencies, etc.





By Emerson W. Swan

Vice President, Operations
Roadway Express, Inc., Akron, Ohio

desk and in the office of the terminal manager.

The communications network covers a 40-mile radius. Terminal personnel, who have road equipment at their fingertips 24 hours a day, can talk to drivers as far away as Gastonia, Shelby, Lincolnton, Cherryville, etc.

Party Line

Roadway uses the single-frequency, or party line, system. The dispatcher and all drivers hear every message. This permits drivers, other than the one involved directly, to volunteer information and service when expedient.

The dispatcher, who receives customer orders by telephone, transmits the orders to his drivers via radio. Each driver reports to the dispatcher each time he leaves his truck.

The message "659 at Edgecomb Steel" means that Truck No. 659 is at Edgecomb Steel's loading dock for a pickup, and is leaving his cab until the loading is complete.

In the same manner, "659 Edgecomb Steel to Jones Brothers" means that the truck has completed its loading at Edgecomb and is on its way to the next stop, at Jones Brothers.

Telephone Savings

A typical analysis of telephone charges eliminated through radio showed a saving of 15 hours a day. Based on a rate of $1.50 per hour, the total saved on telephone toll charges comes to $22.50 a day. The analysis was made from a running log. The log showed 40 trucks phoning the terminal a total of 310 times in an average day. The average time per call was three minutes.

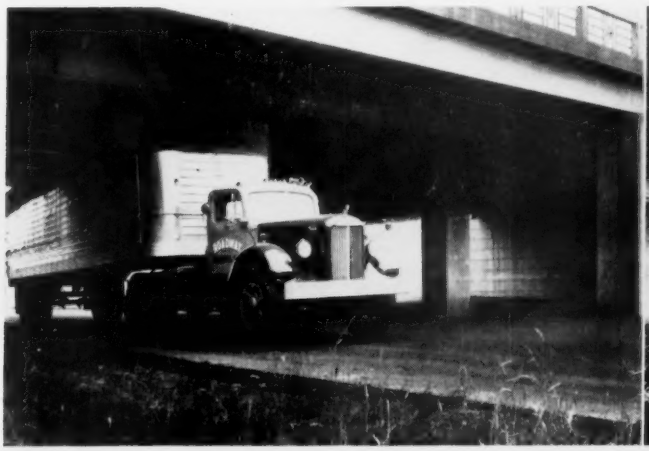
The terminal manager also reports satisfaction with the system. With the remote control unit on his desk, he is better able to monitor the entire terminal. By listening to conversations between drivers and between drivers and dispatcher, he gets a better picture of his overall operation.•

Top: Civil Defense coordinator and terminal manager watch communications officer in civil defense test

Bottom: Experimental use of RCA radio equipment in safety patrol duty is expected to bring wider use



Eight straight trucks and two tractors were equipped with 30-watt, RCA mobile radio units in the Charlotte operation





NEW PRODUCTS

. . . . FOR FURTHER INFORMATION

Crane Pallet Lifter

Cady Metal Fabricating Co. is manufacturing a 6000-lb capacity pallet lifter for use with cranes and hoists.

Welded alloy steel construction and box section design provide a lifting unit with minimum weight. The lifter



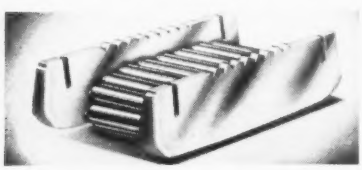
is counterbalanced to hang level, loaded or empty.

Circle 35 on Card Facing Page 49

Machinery Roller

For moving heavy machinery, the **Express Roller Div., Industrial East Co.,** has introduced its Express Roller.

Working on the principle of cater-



pillar action, the roller has two main components. One is a series of moving rollers locked in an endless track and extending above and below a heavy steel frame. The frame carries the work load being moved.

Capacities range from 2-150 tons. Accessories are offered.

Circle 36 on Card Facing Page 49

L-Gas Converter

Small engines can be converted to LP-gas through use of a secondary regulator manufactured by **Beam**



Products Mfg. Co. The 102N weighs 2¼ lb, is 2-in. thick, and 5¾-in. in diameter.

It has vacuum lock-off, power adjustment and idle adjustment built in. This regulator will operate up to 35-hp motors with 6-oz natural gas and up to 65-hp motors with 5-lb natural gas.

Circle 37 on Card Facing Page 49

Drum Head Stencil

Diagraph-Bradley Industries has developed an ink suitable for marking on metal—to be used with the Rol-It-On roller process stenciling



system. The new non-porous marking ink is available in colors. It is designed for marking on metal or any non-porous surface. A circular attachment on the D B Stencil Cutting Machine makes circular stencils simple to cut.

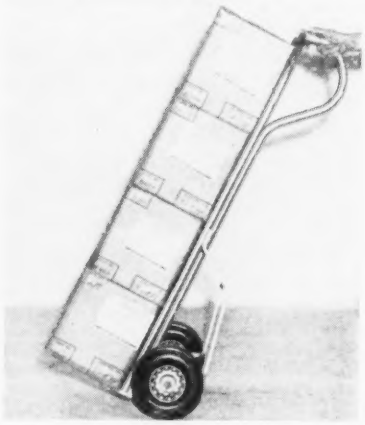
Circle 38 on Card Facing Page 49

Lightweight Hand Truck

All parts are replaceable on the new hand truck announced by **Nutting Truck and Caster Co.**

Glides are available as extra equipment to permit use of the trucks on stairways.

Constructed of lightweight material, a choice of roller or ball bear-



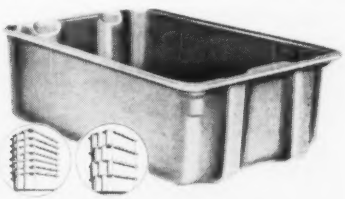
ings is offered. Semi-pneumatic rubber tires are demountable for quick replacement.

Overall size is 19¼ x 46¾ in. Weight is 20 lb.

Circle 39 on Card Facing Page 49

Stacking Tote Pans

The **G. B. Lewis Co.** is introducing two new sizes in its "Stack-n-Nest" tote pans. These are 16 x 10 x 5 in. and 22 x 14 x 8 in. The pans stack and nest within their own dimensions. Each end of the pan is formed to a



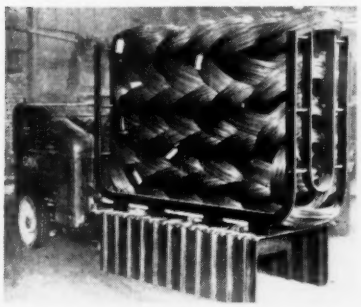
different contour offset. When pans are alternated, stacking results. With like ends together, the pans nest. Made of fiber-glass-reinforced polyester, they will resist water, oil, and chemicals. Their surface is smooth and will not scratch or cut hands when being handled.

Circle 40 on Card Facing Page 49

Skid and Storage Rack

A combined skid and storage rack capable of holding up to 50 heavy-gage wire coils has been developed by the **Pressed Steel Div. of Republic Steel.**

The one-piece unit consists of a cor-

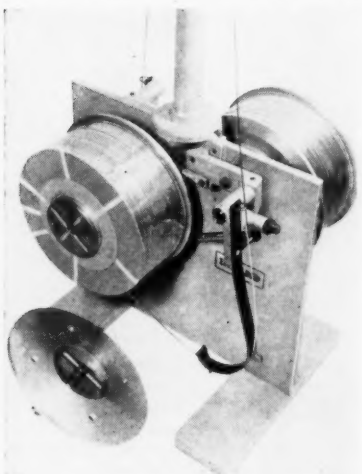


rugated steel skid welded to a U-shaped, open-side superstructure. The skid is seven-gage corrugated steel. It is 36-in. wide, 72-in. long, and has an 18-in. under clearance. Both skid and superstructure can be made to specified dimensions.

Circle 41 on Card Facing Page 49

Wire Coil Holder

Two coils—one in operation and one standing by—are used by the **Inland Wire Products Co.'s** 50-lb



stitching wire coil holder to cut down time for changing coils. A positive brake action prevents tangling of the wire during operation.

Circle 42 on Card Facing Page 49

Highway Trucks, Tractors

To meet demand for light-weight transports with more loading space, the **White Motor Co.** has developed a new group of trucks and tractors known as the Spacemaker series.

Consisting of six basic models, the series emphasizes maximum legal loading space and minimum chassis weight commensurate with vehicle strength and long life.

Model WF4864T is a dual drive tractor with 48-in. deep cab and various wheelbase lengths. It is powered by a horizontal diesel engine. Model WF5842 (shown) is a single drive tractor with conventional upright diesel engine but with radiator mount-



ed at the right rear of the cab. This permits a 10-in. shorter wheelbase.

Another 58-in. cab model is WF-5844T with four-wheel drive. The front drive axle can be engaged or disengaged at the flip of a switch with vehicle moving or standing still. The WF6542T is a single drive tractor with 65-in. cab. It is designed to pull two 24-ft trailers within 60 ft.

The WF6564, a dual drive truck with 65-in. cab, is available in a variety of wheelbases. Standard chassis weight is 13,350 lb. Standard equipment on the WF7564T, a dual drive tractor, is a 75-in. sleeper cab. A 35-ft trailer can be pulled within 45 ft overall.

Circle 43 on Card Facing Page 49

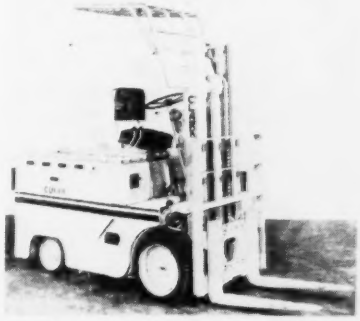
Skate Wheel Conveyors

Rack Conveyor Systems, Inc., have added a low-cost skate wheel conveyor system to their products. A variety of straight and curved sections, stands and heavy duty channels are available.

Circle 44 on Card Facing Page 49

Battery Fork Truck

Available for operation in warehouses with 13-ft aisles and right-angle stacking is the EUT-8024, 8000-lb capacity battery-powered fork-lift



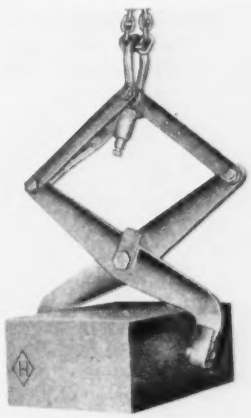
truck manufactured by **Clark Equipment Co.**

Overall length of the truck is 133 in. with a turning radius of 85 in. With four speeds forward and four reverse, it will travel loaded at 5½ mph.

Circle 45 on Card Facing Page 49

General Purpose Tongs

Hepenstall Co. is manufacturing on a production basis two new general purpose tongs. Rated capacities are 3000 and 5000 lb. The former has a



maximum jaw opening of 18½ in. and a maximum width of 27½ in. The other has maximum opening of 25 in. and maximum width of 37¾. Jaws lock open while being lowered over the object.

Circle 46 on Card Facing Page 49

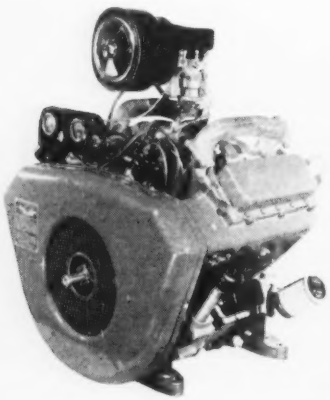
(Please Turn Page)

NEW PRODUCTS and EQUIPMENT

CONTINUED FROM PREVIOUS PAGE

Four-Cylinder Engine

Available for warehouse and industrial uses is a new valve-in-head engine introduced by the **Lycoming Div., Avco Mfg. Corp.** The V-type engine,



model CV4-180, delivers 70 hp at 3000 rpm. It is air cooled. Weight, without electric starter, generator and flywheel housing, all of which are optional, is 463 lb.

Circle 47 on Card Facing Page 49

Truck-Mounted Crane

Two line hoisting with each line operating from a separate drum is a feature of a truck-mounted crane in-



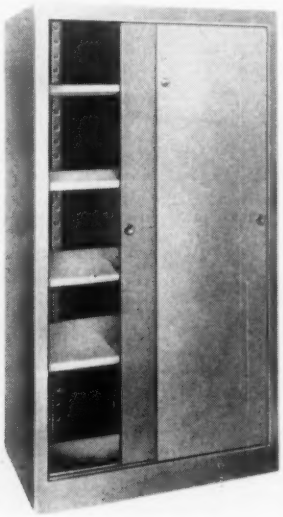
troduced by **Coles Cranes, Inc.**

The new Model L-1510 is available with booms up to 75 ft in length. The crane will lift 15 tons at 10-ft radius with a 30-ft boom.

Circle 48 on Card Facing Page 49

Sliding Door Cabinets

To reduce space requirements of swinging doors and promote safety, the **Precision Equipment Co.** is manufacturing a line of sliding door cab-



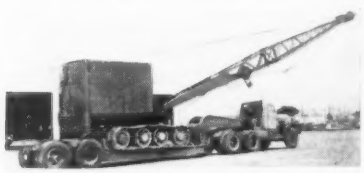
inets. Doors are suspended on nylon rollers.

Made of heavy-gage steel, the cabinet has one shelf welded in place for extra rigidity. The other two shelves are adjustable. Extra shelves may be purchased.

Circle 49 on Card Facing Page 49

Gooseneck Carryall

The Fruehauf Trailer Co. is now producing a new carryall semi-trailer with a removable gooseneck for front-end loading. Neither a winch nor hydraulic equipment is required for coupling and uncoupling the goose-



neck. It is designed for loads of up to 60 tons and will handle loads up to 50 tons without winch assistance.

Circle 50 on Card Facing Page 49

Hydraulic Skid Lift Truck

Push-button controls are featured on a new self-propelled hydraulic skid lift truck made by **General Sales and Engineering Co.**

Buttons on this new addition to the Samson line enable operator to pick up, transport, raise, and lower skidded loads. A push button control attached to a retractable reel permits



the operator to raise or lower the load from any selected position. The motor is used only when the load is transported or raised.

Three models are available with capacities of 2000, 3000, and 4000 lb. Raised heights are 36, 52 and 68 in., respectively. Lowered height is 6½ in.

Standard heavy-duty batteries carried in the cabinet provide operating power.

Circle 51 on Card Facing Page 49

Mechanical Floor Cleaner

To remove grease-caked dirt from floors in a single operation, the **G. H. Tennant Co.** is producing a 25-hp hydraulic machine. Operated by one man, it cleans a 21-in. path and can do 4000



sq ft per hour. Cleaning action is provided by a heavy-gage wire brush cylinder revolving at 1600 rpm. Hydraulic cylinders hold the brush against the floor. Dirt is hurled into a built-in hopper. A 2400-rpm fan aids soilage pickup.

Circle 52 on Card Facing Page 49

Lightweight Portable Crane

One man can lift 3000 lb on a single line with a new portable crane announced by **Sasgen Derrick Co.**

Weighing only 350 lb, it can be tilted back like a two-wheel truck and



wheeled through low overhead doorways. A seven-to-one gear reduction provides fast lifting with a minimum degree of wear. Regardless of where the operator stops turning the crank, the load is held safely at that position.

Two 3000-lb capacity models are produced. One has a 7-ft 6-in. overall height and the other is 9 ft overall.

Circle 53 on Card Facing Page 49

New Lever Hoist

Angular, horizontal, and vertical lifting are possible with a new ¾-ton lever hoist made by **Thern Machine Co.**



Requiring only a 1/3-arc movement for operation, the hoist can be operated in tight or limited quarters. A special ratchet design with two ratchet levers keeps the ratchet wheel under control at all times and gives assurance against slipping.

Circle 54 on Card Facing Page 49

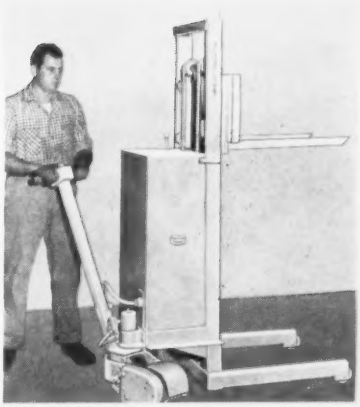
Mobile Lift Truck

A new, mobile fork lift truck, the Tubarlift Champion Stroller, is now being manufactured by **Uhrden, Inc.**

Designed to elevate loads up to 1000 lb to heights up to 60 in. the truck has dual lifting chains for added strength and a 12-volt electrical system with a built-in battery charger.

The new unit has an overall height of 73½ in., overall length of 53 in., and overall width of 30½ in.

Safety features include push-but-



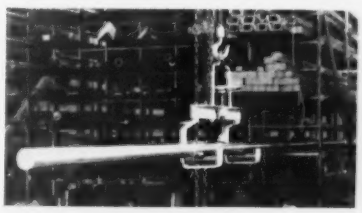
ton self-releasing controls and three-wheel brakes. Steering handle locks back into place when released.

Circle 55 on Card Facing Page 49

Bar Stock Handler

Moving and handling of bar stock is speeded up and simplified by the **Industrial East Co.'s Bar-Lugger.**

One operator can handle up to 6-in.



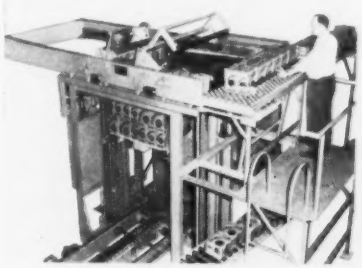
bar stock where formerly two or three men were required.

To store a bar in a pigeon-hole rack, the metal is picked up on the Bar-Lugger, clamped on the V-grooved rollers by a screw, and directed into the rack.

Circle 56 on Card Facing Page 49

Semi-Automatic Pallet Loader

A semi-automatic pallet loader produced by the **Mathews Conveyer Co.** stacks containers on pallets in patterns controlled by an operator. The loader is divided into three parts: empty pallet handling equipment, full pallet handling equipment,



and carton handling equipment. Components are mechanical, electrical, and pneumatic.

Circle 57 on Card Facing Page 49

Adjustable Hand Truck

Large, bulky, flat-crated case goods are handled by Model A-B of the **Rol-Away Truck Mfrs., Inc.**

The new design changes loading procedures. The upper structure tilts forward without lifting wheels from



the floor. The load then is tilted back to any desired slant and held there.

Cases up to 18 in. in width and 2500 lb in weight can be handled by one operator. Loads are carried at a greater angle in a firmly braced position, eliminating tilting and tipping.

Circle 58 on Card Facing Page 49

Yard Trailer

A new six-ton-capacity yard trailer has been announced by **Richie & Sat-**



tler, Inc. The trailer consists of a flat bed, 7 x 14 ft.

Circle 59 on Card Facing Page 49

Motorized Pallet Trucks

Designed to cut pallet maintenance, a new small hand motorized low lift pallet truck manufactured by **Lift**



Trucks, Inc., features a greater floor clearance and an automatic release which drops forks entirely when the weight has been released.

Circle 60 on Card Facing Page 49

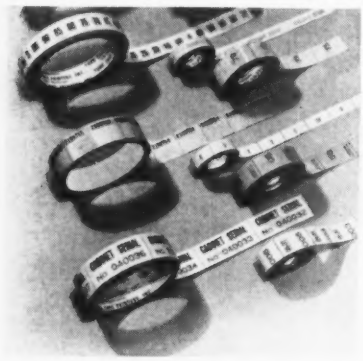
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NEW PRODUCTS and EQUIPMENT

CONTINUED FROM PREVIOUS PAGE

Pressure-Sensitive Tapes

Numbered pressure-sensitive tapes, produced by **York Tape Printers, Inc.**, permit easy sorting of lots and ready identification of individual parts. A



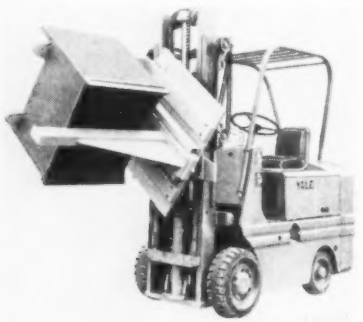
consecutive number code can be set up to meet any problem of identification. Consecutive repeats may be printed on the tape. Color codes may also be arranged.

Circle 61 on Card Facing Page 49

Bin Dumping Attachment

The Yale & Towne Mfg. Co. has developed an attachment for the transportation and dumping of open bins or boxes.

The attachment is a clamp with a



single arm which, through hydraulic pressure, holds the bin securely against the forks.

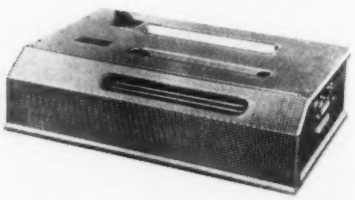
Any type of container in the height range of 15½ to 35 in. and equipped with runners can be dumped. The hydraulic arm has a small lip to prevent forward slippage.

Circle 62 on Card Facing Page 49

Photo Copy Machine

An automatic photo copy machine, the Genco Exact-Fax Portable, has been announced by **General Photo Products Co., Inc.** The unit is self contained and works in normal office light without a shield.

Of all metal construction with a stainless steel covering, the copy machine weighs 28 lb. It will make about 90 copies per hour. Copies can be up to 9½ in. wide and any length. One or two-sided copies can be made. Material originally in color can be reproduced.

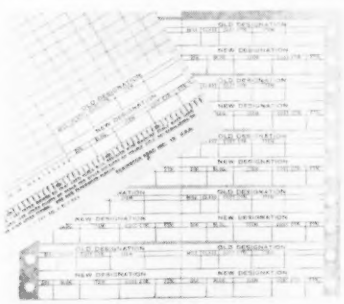


Multiple copies up to seven from one negative can be made for 4-cents each. Colored papers are available for coding or filing purposes.

Circle 63 on Card Facing Page 49

Self-Adhesive Labels

For changing designations in a file system with marginal punching, the **Avery Adhesive Label Corp.** has developed pressure-sensitive Tabulabels. The labels will pass through tabulat-



ing machines. Each label is duplicated opposite the center perforation and both are imprinted with old and new designations in one trip through the tabulator. One set of labels will serve the home office while the other may be sent to a branch office.

Circle 64 on Card Facing Page 49

LP Industrial Tractors

Three new industrial tractors of the **Mercury Mfg. Co.**—models 930, 940, and 950—are now available for LP-gas operation. Easy starting, long engine life, moderate maintenance costs, a reduction in fumes, and low oil consumption, are claimed by the



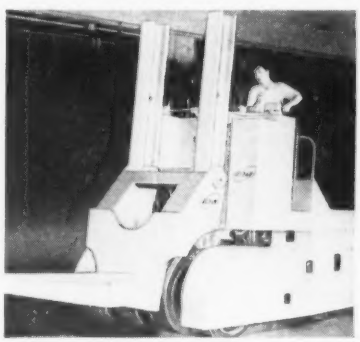
manufacturer for this type of operation.

High compression ratios give maximum power from the fuel. Stellite valves and inserts and positive valve rotors add to engine life.

Circle 65 on Card Facing Page 49

Heavy-Duty Ram Truck

Elwell-Parker Electric Co. has introduced a new 30,000-lb capacity ram truck for use in warehouses and metal working plants. Part of the



R10N series, it features dual drive motors, power hydraulic wheel brakes, hydraulic power steering, a simplified lift mechanism which eliminates a lift chain, and heavy-duty frame.

Circle 66 on Card Facing Page 49

Automatic Counter

A new series of automatic counting devices for any operation controlled by pneumatic or hydraulic action has been announced by **Pneumaticount.** The counters screw into the line controlling any air or hydraulic cylinder. Models are available for from 1 to 5000 lb and up to 300 counts per minute.

Circle 67 on Card Facing Page 49

Power Strap Dispenser

To pace steel strapping with the high speed of production lines, **Signode Steel Strapping Co.** has introduced a new power strap dispenser. Length of the strap fed through the cutter jaws is regulated by push button. Cutting requires two to four seconds.

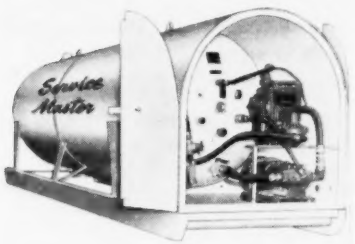


Circle 68 on Card Facing Page 49

LP-Gas Service Station

A portable butane-propane filling station, the Service Master, has been announced by **Master Tank & Welding Co.** It is mounted on a skid for easy movement.

It can be used for servicing vehicles when the bulk storage plant is tied up for long periods of time in unloading of a transport. The Service Master is shipped ready for service and is installed by plugging it into an electric outlet.



Capacities range from 1000 to 6500 water gallons.

Circle 69 on Card Facing Page 49

Body for Feed Truck

An all-pneumatic delivery system is built into a new feed body, the New-Matic, introduced by the **Baughman Mfg. Co.**

Made in both truck and trailer mounted models, the body provides unloading facilities in areas unsuited for conventional bulk body methods of discharge.

A blower permits feed discharge at up to 600 lb per min. Delivery can be made to high elevations or storage bins by extension of the discharge hose.



Multiple compartments, with drop doors to prevent intermixing, permit mutiple deliveries on a single trip.

Circle 70 on Card Facing Page 49

Monomast Lift Truck

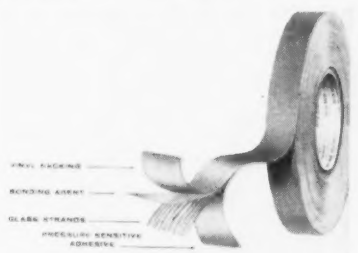
Improved visibility is claimed for the **Hyster Co.'s** model 20 with a single mast. The 2000-lb capacity model is available with side shift.



Circle 71 on Card Facing Page 49

New Strapping Tape

A new pressure sensitive tape for packaging, package reinforcing, bundling, palletizing, unitizing, and tear stripping has been developed by the **Dutch Brand Div., Johns Manville.**



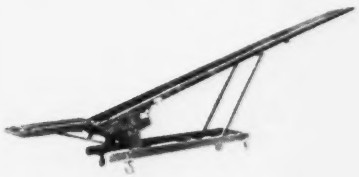
Made with strong vinyl film backing, Brand No. 400 is reinforced with glass. It resists rust, acids, salt water, and mildew.

Circle 72 on Card Facing Page 49

Portable Belt Conveyor

A long overhang for loading truck is possible with a new portable belt conveyor introduced by **The Colson Corp.**

The self-powered elevating device is operated by a lever and adjusts the angle from horizontal to 45 deg. A powered screw automatically locks the conveyor at the desired angle. Available as standard equipment on 20 and 22-ft models, the lever controls a clutch mechanism which raises the unit when the belt moves forward and lowers it when the belt is in reverse. Self-powered elevating is optional on 10-16-ft models.



Circle 73 on Card Facing Page 49

Glass Cloth Tape

A new flame resistant glass cloth tape has been announced by the **Permacel Tape Corp.**

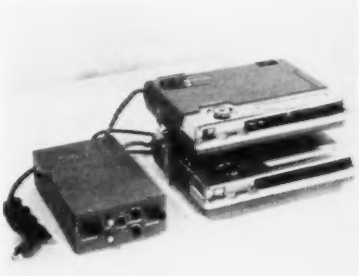
Permacel 621 is recommended for identification markings where flameproofness is required.

The tape is composed of a glass cloth backing and a self extinguishing rubber base pressure-sensitive adhesive mass.

Circle 74 on Card Facing Page 49

Recorder for Conferences

The **Edison Voicewriter Div. of Thomas A. Edison, Inc.,** has introduced a new product for recording conferences and long conversations or speeches.



The Edison Continuous Recorder uses two standard dictation machines mounted in cradles and plugged into a control unit. As one recorder nears the end of its disc, the other automatically is switched on. Throughout a long conference the machines switch back and forth. A finished disc is available for transcribing every 15 minutes.

Circle 75 on Card Facing Page 49

FREE LITERATURE

Railroad Tariffs

The Railroads' Tariff Research Group has published a 16-page report on its five-year old tariff improvement program. The report includes brief descriptions of the 105 Freight Tariff Improvement Bulletins issued by the Group, with a detailed account of tariff makers' reaction to each.

Circle 76 on Card Facing Page 49

Integration of Data

Integrated data processing—simplifying and reducing paper-work by recording transactions so that records can be computed, transmitted, or reproduced without rewriting—is the subject of a 21-page booklet by **Ditto, Inc.** Selecting processing equipment that suits the needs of the business is stressed. Equipment studied includes one-writing systems, punched cards, magnetic and punched tapes, telegraphic transmission, and electronic computers.

Circle 77 on Card Facing Page 49

Truck Weighing Systems

Scales which weigh either moving or standing trucks are listed by **Taller & Cooper** in a folder on its Weigh-Tronic Systems. Systems can include printing devices, telemeter systems, data reduction systems, and card punch equipment.

Circle 78 on Card Facing Page 49

Rug Cleaning Service

Case histories of two transfer and storage companies which built their rug cleaning service to increase earnings are told in reprints available through **The American Laundry Machinery Co.** Information on starting or expanding a rug cleaning service is also being offered.

Circle 79 on Card Facing Page 49

Truck-Mounted Crane

A truck-mounted unit for such applications as crane, clamshell, trench-hoe, shovel, pile-driver, and magnet is the subject of a new brochure published by **The Hanson Clutch and Machinery Co.** Illustrations show the cranes and excavators in various forms for specific applications.

Circle 80 on Card Facing Page 49

Rider Lift Trucks

The Moto-Truc Co. shows its line of low and high lift rider trucks in a new eight-page bulletin. Low lifts have center-wheel drive. High lifts include outriggers and counter-balanced models.

Circle 81 on Card Facing Page 49

Manual on Tape

A four-way tape finder to aid in tape selection is included in a unique handbook published by **Mystik Adhesive Products, Inc.** Pressure sensitive tapes are listed four ways: government specification, manufacturer's product number, tape type, and specific application within 134 industrial classifications.

Circle 82 on Card Facing Page 49

FILMS

Single-Mast Lifts

Comparative action shots of Monomast lift trucks and conventional equipment are presented in a new film prepared by the **Hyster Co.**

Various applications of 2000, 3000, and 4000-lb capacity lift trucks were filmed on the scene in industry. Job advantages shown include fast lifting speed, load stability and improved operator safety.

Circle 83 on Card Facing Page 49

Use of Typewriter

"The Typewriter in Business," a motion picture on many important uses and adaptations of today's typewriter, is being distributed by **Remington Rand Div. of Sperry Rand Corp.**

The purpose and use of typewriter devices, attachments, and keyboards are demonstrated. Uses of electric, manual, and noiseless typing are covered, from straight copy typing to automatic typing initiated by electronic systems such as Univac.

Circle 84 on Card Facing Page 49

Bulk Containers

Saving money through use of Tri-Wall Bulk Packs is explained in a new illustrated folder by **Tri-Wall Containers Inc.** Seven basic types of this heavy-duty packaging are described.

Circle 85 on Card Facing Page 49

Hoist Catalog

"How to Select the Proper Type of Hoisting Equipment" is the title of a 44-page booklet by **The Yale & Towne Mfg. Co.** Features and specifications of hand hoists, Pul-Lifts, and plain and geared hand hoist trolleys are presented.

Circle 86 on Card Facing Page 49

Pallet Unloader

Pallet loads of cases are automatically unloaded onto conveyor lines with the De-Palletizer, developed by the **Alvey Conveyor Mfg. Co.** A new engineering bulletin on the unloader reports that cases move away single file at a rate of 25 to 30 per minute.

Circle 87 on Card Facing Page 49

Two-Way Truck Radio

New profits in truck and terminal operation through use of two-way radio are reported in a new booklet by **Radio Corp. of America.** Sample applications of equipment are given.

Circle 88 on Card Facing Page 49

Mobile Radio System

Need for an expensive base station is eliminated in **Kaar Engineering Corp's.** new Imp radiotelephone. Designed for low power industrial service, the system uses any unit as a base transmitter. It also can be used as a mobile public address system.

Circle 89 on Card Facing Page 49

Industrial Cleaner

Explosion hazard is removed by a new air-operated high-suction vacuum cleaner manufactured by **Vac-U-Max Sales Co.** All three models discussed in a new folder are operated by connection to the company's compressed air supply. Special units are available for specific materials handling jobs.

Circle 90 on Card Facing Page 49

Motor Carrier Finance Book

Serving as a yardstick of financial position of motor carriers is a study by an executive of the First National Bank of Boston. Available in a booklet published by the **American Trucking Associations**, "Financial and Credit Aspects of the Motor Carrier Industry" is based on 1955 carrier reports filed with the Interstate Commerce Commission.

Circle 91 on Card Facing Page 49

Catalog of Casters

Nagel-Chase Mfg. Co. illustrates and describes standard sizes, styles, and types of casters in its condensed catalog, announced recently. Included are casters for dollies, trucks, stands, work tables, mobile air conditioners, fans, and office furniture.

Circle 92 on Card Facing Page 49

Package Printing Machine

Five case studies showing savings in time and money through use of a **Pitney-Bowes** Package Imprinting Machine are available along with an illustrated folder. Model 4800 is electrically driven and will handle up to 7500 pieces per hour.

Circle 93 on Card Facing Page 49

Mechanical Sweeper

Cost savings and dust control are possible through use of a power sweeper manufactured by **G. H. Tennant Co.** Mechanized sweeping in congested areas is discussed in a booklet introducing the new equipment.

Circle 94 on Card Facing Page 49

Dual Stapler for Conveyor

A single operation staples both top and bottom of boxes when a new dual stapler manufactured by **International Staplers** is used on a conveyor line. The retractable anvil can be regulated to prevent damage to contents of the containers.

Circle 95 on Card Facing Page 49

Controls for Cranes

A booklet of instructions for selecting the right controls for operation of overhead cranes has been published by **General Electric Industry Control Dept.** Cranes are divided into five service classifications. Controls can be operated from the floor or the crane.

Circle 96 on Card Facing Page 49

Strapping Tools

Tools required for heavy-duty strapping are featured by a **Brainard Steel Co.** bulletin. Equipment includes stretchers, sealers, winders, holder, cutters and shears.

Circle 97 on Card Facing Page 49

Fork-Truck Attachments

A quick reference folder on attachments for powered industrial trucks has been compiled by **The Elwell-Parker Electric Co.** Such equipment as standard load clamps, side shift load clamps, rotating load clamps, standard clamps with pallet forks, and rotating forks are covered.

Circle 98 on Card Facing Page 49

Refrigerated Van

Molded plastic with fiberglass reinforcing and balsa wood insulation are used in a new 12-ft refrigerated van truck body. Elimination of an internal frame removes the chance of metal-to-metal thermal conductivity. Specifications are available from **The Heil Co.**

Circle 99 on Card Facing Page 49

BOOKS

Training Guides

Three training guides covering pick-up, delivery, dock, and line haul operations have been completed by the Operations Council of the American Trucking Associations.

Included in the material are job descriptions, instruction on preparation of forms and reports, diagrams, procedures in the handling of many types of shipments, loading and unloading methods, and safety procedures.

The set of three costs $10. Copies can be acquired through **American Trucking Associations, Inc.**, 1424 16th St., N.W., Washington 6, D. C.

Palletizing Manual

The Refractories Institute has announced a new, 46-page revised Palletizing Manual.

It contains sketches and text describing recommended procedures for palletized handling of all refractory products. Explained in detail are standard wooden pallets, pallet-load protection, carloading patterns, palletizing of insulating firebrick and bulk materials in bags, drums and cartons, standard wooden end gates, methods of carloading empty pallets for return shipment, and quantities of brick per pallet.

Copies, at cost of $1.50 each, are available from **The Refractories Institute**, First National Bank Building, Pittsburgh 22, Pa.

For prompt service, use postage-free postcard provided to obtain FREE LITERATURE and NEW PRODUCT information described in this issue. All material is FREE unless otherwise noted.

Plastics Reference

A Condensed Reference File on six plastics has been compiled by the **Plastics Dept. of Union Carbide International Co.** Designed to help in the selection of the right plastic for any job, it gives history, characteristics, fabricating techniques, and applications of polyethylenes, vinyls, phenolics, styrenes, epoxies and polyesters.

Circle 100 on Card Facing Page 49

Pans, Boxes, Racks

All American Steel Products, a division of **All American Radiator Cover Co.**, is introducing a line of stacking boxes, hopper-front boxes, adaptor racks, nesting pans, and pallets in a new catalogue. All are made of steel.

Circle 101 on Card Facing Page 49

Electric Side Loader

Safety is improved on the new electrically operated side loader of the **Baker-Raulang Co.** through both the brakes and the travel control mechanism. When the operator leaves the platform of the TE-4, an electric interlock opens the circuit in the control mechanism and the brakes are applied. The new model has a capacity of 4000 lb and is 48 in. long.

Circle 102 on Card Facing Page 49

Gas-Electric Fork Lift

Advantages of gas and electric power are achieved in a new five-ton capacity fork truck announced by **Automatic Transportation Co.** The truck, which uses a gasoline engine to power a generator which, in turn, powers an electric drive motor, is described in a four-page brochure. The need for battery charging and gear shifting are eliminated.

Circle 103 on Card Facing Page 49

Packaging Cushioning

Efficient and economical cushioning for interior and exterior packaging is achieved through use of facial tissue in **Jiffy Manufacturing Co's.** Kushion-Kraft products. Information on the packing material, which is available in rolls, sheets, insulating bags, padded shipping bags, and floor liners, is offered in an illustrated folder.

Circle 104 on Card Facing Page 48

DA Materials Handling Primer—XVI

Exterior Containers—Barrels and Drums

By D. O. HAYNES
DA Materials Handling Consultant



FIG. 1—THE WOODEN BARREL GROUP

The Associated Cooperage Industries of America, Inc. defines a wooden barrel as: "A uniformly bulging, cylindrical container of greater length than breadth. It's made of wooden staves bound together with hoops and has two flat ends or heads of equal diameter." A keg simply is a barrel of less than 30-gal capacity. In the following discussion the term barrel will be understood to include both barrels and kegs, unless otherwise indicated.

The Association divides barrels into three main categories:

1. Slack barrels for the shipment and storage of powders, semisolids, and solids;
2. Tight barrels for the shipment and storage of liquids;
3. Beer barrels for the shipment, storage and dispensing of malt beverages.

Sometimes one comes across a container called a barrel which does not follow these specifications. An example is a basket barrel. This has wooden staves that are interlaced and crossed diagonally. In addition to five outside, it has four inside hoops to provide greater strength. The top of this barrel which is illustrated in Fig. 1, is not made of wood, but is burlap or cloth. Its primary use is, for shipment of certain vegetable greens.

Habit and trade customs have given rise to other names for barrels. Except for the U. S. Standard barrel, the following are only approximate designations.

NAME	CAPACITY
Keg	Under 30 gal
U. S. Standard barrel	31.5 gal 7056 cu in
Tierce	42 gal
Hogshead	63 to 140 gal
Cask (general term)	large barrel
Tun	252 gal

Dimensions of barrels differ according to the manufacturer. In order to give some idea of dimensions that one may expect to find, the following ap-

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proximate figures for three sizes of slack and tight barrels are given:

	Head Diam. (in.)	Stave Length (in.)	Outside Bilge Diam. (in.)	Capacity cu. in.	Capacity gal.
Slack	15½	24	19	4912	21.27
	17⅛	28½	20½	6845	29.63
	22	34	27	14762	63.90
Tight	10⅜	17½	12¼	1091	5
	17⅜	29½	21½	6546	30
	21⅝	35¼	26½	12436	57

Although the interior dimensions of these containers are important from the standpoint of capacity, we are interested primarily in the exterior or overall dimensions. The sketch in Fig. 2 shows a relatively simple way for determining the bilge diameter. This is an important measurement, required for calculating space requirements. Also shown is a method for figuring the space occupied by nested barrels. In shipping, the factor known as stowage (space in cu ft occupied by one long ton [2240 lb] of the commodity frequently is required.

Gross weight is the essential one in handling. For example, 145 lb of apples weigh 160 lb when barreled; a tierce of lard weighs 400 lb net, 470 lb gross. The tare figure and the net or the gross must be known in planning to handle commodities in barrels.

HANDLING CHARACTERISTICS OF WOODEN BARRELS

The outstanding characteristics of wooden barrels is that they are rigid, have a bulging cylindrical shape, and have protruding chimes, which create false bottoms.

The unique bulging of barrel staves results in what is sometimes called "double-arch" construction. This in great measure accounts for the container's strength. It also accounts for the designation "container of wheels." For horizontal movements over relatively short distances it is sometimes practical to propel barrels manually by pushing them, even when they are loaded with several hundred pounds. They are highly maneuverable when handled in this manner. When they are loaded with powdery materials and do not have proper lining, the product may sift out along the path of travel when this procedure is followed. As we shall see, there are trucks and other machines which are more efficient for handling barrels, especially when considerable distances and quantities are involved.

The barrel's bulging sides mean that when the container is carried by equipment, the surface usually must be made to conform with the curvature, or chocks must be provided to secure stability.

Although the chime feature precludes the use of certain handling equipment, notably wheel conveyors, it does provide a means to grab a barrel with hooks and other devices.

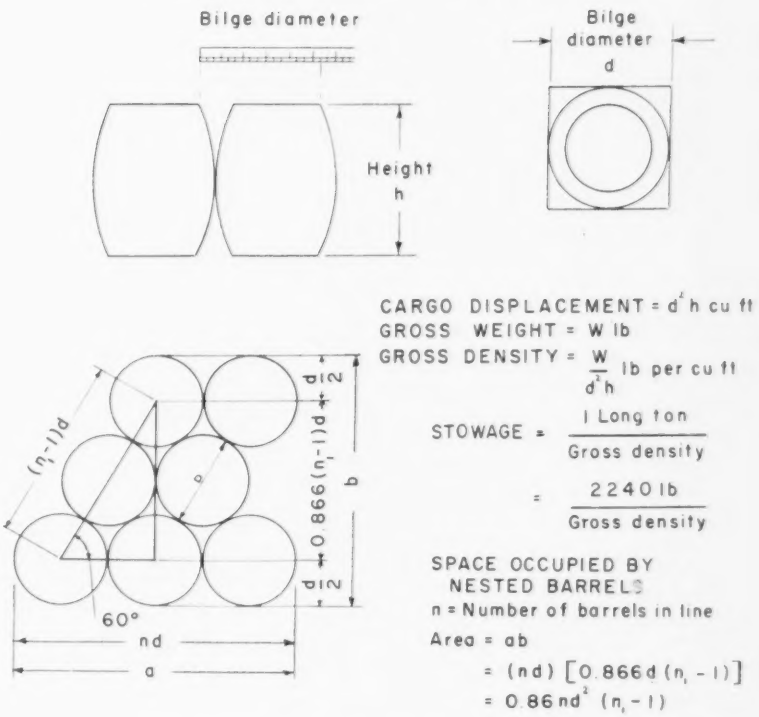


FIG. 2—SOME BARREL CALCULATIONS

Continued

In his next installment, Mr. Haynes will continue his discussion of Exterior Containers—Barrels and Drums. The chapter will include steel, aluminum, and fiber barrels and drums and handling techniques recommended for all types of barrels and drums.

Materials Handling Equipment

Material included in this series of articles is being published in book form. The book, to be called "Materials Handling Equipment," is scheduled for publication by Chilton Co. in June. It will include close to 600 line illustrations and some 576 pages. The volume will sell for approximately $15. Prepublication orders can be placed through the editor of this magazine.

Water Highways—Part IV

The value and permanence of trailership service depends on the manner in which such service is geared to modern shipping-unit standards for the integration of all forms of transportation . . . By Wayne W. Light

The Operational Side of

TRAILERSHIP service must be dedicated to handling for certified regular route operators. Then, and only then, can such service become an integral part of a regulated total transportation system.

The old concepts of transport operations and regulations, formed when railroads had a monopoly, are unrealistic. The complex transport problems of today are evidence that our transportation system is not geared to modern economy.

Unregulated transportation is on the way out. This must be so if transportation is to continue to serve and nourish our civilization.

As outlined in previous articles, trailership loading and unloading time has a substantial bearing on the ship's operating economy. Patronage by trailer operators also depends on loading and unloading time. In addition, loading and unloading time affects the ship's nonproductive turn-around time, and its immediate out-of-pocket costs.

Ship Design

Ship design should conform to the requirements of military usefulness. In addition, it should provide maximum facility for loading and unloading trailers and/or containers. Except for beach landing craft, the best loading and unloading is accomplished from both sides of the ships. Trailers must be loaded athwartship to permit quick loading and unloading. Operating simultaneously from both sides of the ship gives the required results.

On sheltered waters, the so-called hanger decks may have completely open sides, as shown in Fig. 1. They should be sponsoned at the bow to obtain maximum loading length. They also should be equipped with an outside rail on both sides. These rails would support gangplanks and enable them to move so that, collectively, they would cover the entire usable length of the ship.

Lower decks should be the conventional closed type. They should, however, include 12-ft wide ports through which trailers can pass, as shown in Fig. 1. Permanent tracks on the floor of these decks will accommodate the sidewise movements of trailers to and from the ports. They will accomplish the movement within the same time as on the upper or hanger decks.

Ships to be used on outside waters should have both decks closed. Each should have ports on both sides of the ships.

Twin-screw ships should be used because of the more flexible control while docking in a slip between two piers. Speeds and other operating factors must be dictated by prevailing conditions.

It is important that piers and terminals be located for the convenience of the trailer operators. Traffic conditions on both the highways and waterways also must be considered. Certified regular route operators, who are expected to underwrite full capacity loads for every trip, must be served with the greatest possible accessibility and maneuverability.

Two Piers Needed

To facilitate loading and unloading, it is necessary to build two piers, with a slip between. Each pier should be double-decked. The upper deck should be 24-ft above mean high-tide waterline, covered, and 20-ft above the lower deck.

One pier should be of conventional length. The other should be short—about the length of the ship. The width of the slip between the piers is determined by the beam of the ships. About 17½-ft of space is needed on either side, over which gangplanks can be thrown. One long and one short pier permit tugs to bring the ships along side of the long pier and guide them into the short and protected slip. Pier mechanism will help handle guide lines.

Sheet piling should be used in the construction of all piers. This minimizes the effects of the tides and currents.

Because trailership service is new it is important that marine engineers and architects be in-

Editor's Note: This is the concluding article in a series of four on trailership service.

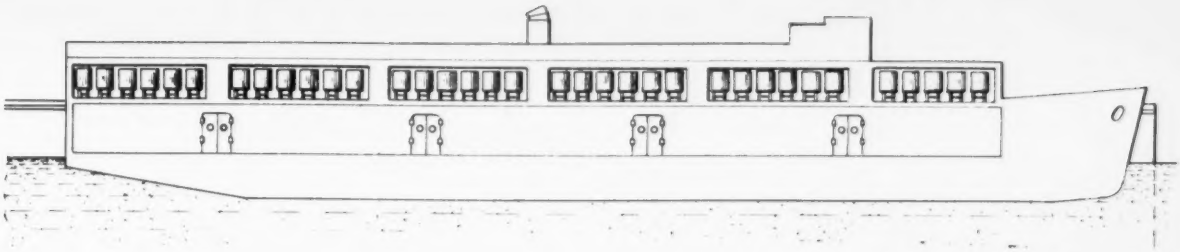
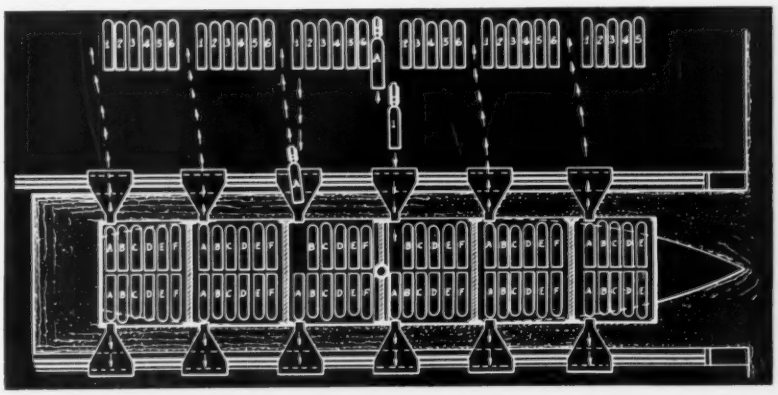


Fig. 1: A trailership that operates on inland and protected waters may have both an open and closed deck. On open waters, both decks should be closed, trailers enter ports on wheeled pallets

Trailership Service

Fig. 2: A trailership between two piers ready for simultaneous loading or unloading from both sides. Pier tractor backs up gangplank, couples to trailer to be unloaded, pulls it down the gangplank, and parks it adjacent to trailer waiting to be loaded on ship. Second trailer is pulled up gangplank and moved into position in vacated spot



structed to consider ship and pier design and construction with a fresh approach. Required specifications must not be subordinated to conventional designs and operating procedures.

Space Requirements

Piers should be from 200 to 300-ft wide to provide for:

1. Delivery of trailers by their operators;
2. Positioning trailers to await ship loading;
3. Parking space for operators' tractors waiting to receive unloaded trailers;
4. Picking up such trailers and moving them from the piers;
5. Maneuverability of pier-tractors used to withdraw and load trailers;
6. Space for temporary trailer parking for extra trailers;
7 Space to accommodate the docking of other ships, at appropriate rentals, on the pier sides not used by trailerships. This is needed especially where such business might be kindred, directly or indirectly, through related warehousing and truck terminal activities. Space also is needed for the construction of additional piers and docking slips to accommodate an expanded fleet of trailerships. This is helpful in concentrated industrial areas where time limits make ship departures and arrivals strategic;
8. Accommodating tracks and mechanized equipment on the lower pier, and on the upper pier when the shipment of demountable bodies and containers inevitably comes into use.

Loading and Unloading

Loading and unloading trailerships, within limited space, is a scientific operation. It requires superior organization and management. It requires special designing and equipment. Equipment cost can be amortized and liquidated by capacity loads, which the service invites and will secure for every trip.

The use of two piers for simultaneously loading and unloading from two sides of the ship completes the operation in from one hour and 20 minutes to two hours. This time does not vary according to the number of trailers. Variations in the number of pier service-tractors keeps loading and unloading time at a fairly constant level.

The load is divided between two piers having four pier decks. Operators park their trailers on both piers at specified positions. Operators' tractors either leave the piers to bring additional trailers, or await to receive incoming trailers.

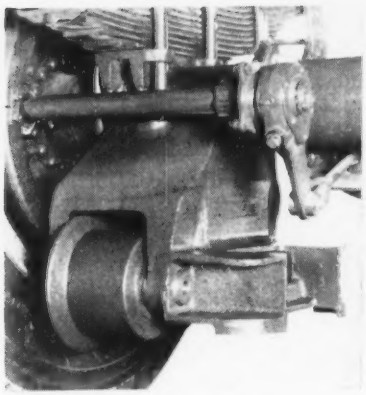
Pier tractors should be owned and manned under contract by trailer operators. Operators have the necessary experience and qualifications for handling trailers, and their responsibility is best assured by investment of their own funds. These tractors function as follows:

1. Back up the ramps and on the ships;
2. Connect with the trailer to

(*Please Turn to Page* 76)

New Loading System Speeds Piggy-Back

Trailers are loaded and tied down in about a minute and one-half instead of six minutes



Close-up of trailer wheel shows the loading dolly attached to the axle

A NEW system for handling trailers in piggy-back service is being used by the New York, New Haven and Hartford Railroad to improve its "Trailiner" service. Using a new type of rail car and simple locking devices, it makes it possible to load and tie-down trailers in position in about a minute and one-half. This compares with about six minutes for the same routine using screw jacks, chains and chocks on a conventional flatcar.

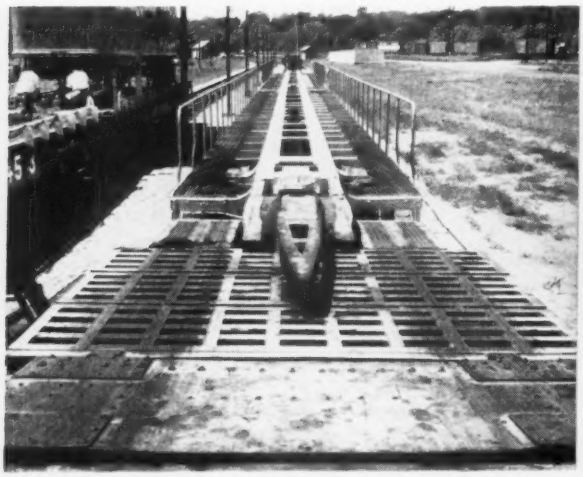
Patterned after the system used by the French National Railroads since 1948, the equipment was designed and developed by Piggy-Back Inc. The first order of 200 rail cars for the New Haven is being built by Pullman Standard Car Manufacturing Co. at Butler, Pa.

The 79½-ft rail car is of all-welded construction, consists basically of two 30-in I-beams, spaced so their top flanges form a 39-in. wide sill or track along the length of the center of the car. Connecting I-beam tracks, which bridge the gap between adjacent cars during loading or unloading, lock in a vertical position at the end of the car when not in use. Several pairs of clamps are permanently located between the center sill beams of the car. A simple turn of a crank by one man working at ground level swings the clamps into position to tie-down the trailer in position.

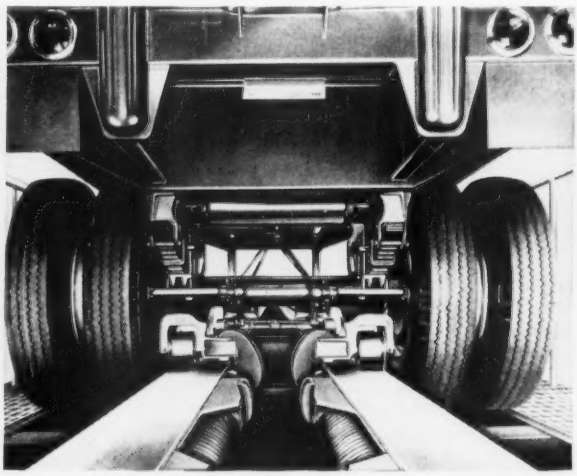
Truck trailers moved in this service are equipped with axle dollies and attachments to the landing gear. Dollies have flanged wheels which ride on the center sill of the car. These are part of the "Guided Loading" system to handle the trailer quickly during loading and unloading. Trailers used regularly in the service are equipped with permanent dollies. Otherwise, for dispatching flexibility, demountable dollies can be attached in less than five minutes. Consequently, any trailer may be equipped quickly for use on the Piggy-Back, Inc. car.

The attachment on the trailer's landing gear has a latch which clamps under the rim of the center sill. Dollies on the rear axle include a slot which engages the

End view of piggy-back car shows center sill which acts as guide for centering trailers. Tapering rail aligns trailers



With trailer tied down, tires straddle "free" 8 in. below center sill. Clamps grip flanged wheel mounts for rail trip



permanent clamp on the rail car when the trailer is locked in position. Rubber snubbers on a shaft with the clamp serve to cushion the rear axle clamps against any longitudinal shocks. They permit the trailer up to 10-in. horizontal travel, either forward or backward, giving ultimate protection to the vehicle and its lading. Trailer dolly wheels support the weight of the trailer on the center sill, with trailer wheels and tires straddling the sides of the I-beams. The trailer is supported on its own springs providing greater resiliency and acting as a cushioning device for the cargo.

Trailers are loaded end-wise on the rail cars by a tractor which also is equipped with flanged wheels on the forward and rear axle. The tractor's rear flanged wheels are of smaller diameter than the road wheels, but operate concentrically with them and with the brake drums. The front flanged wheels are small dolly wheels which ride along the rails of the rail car, providing stability, steering guidance and security.

Key to the fast loading is a "frog" type centering device which engages the flanged wheels on the tractor and trailer and automatically guides them into proper alignment on the rail car. Spring activated platforms under the "frog" shift to left or right when contacted by the flanged wheel. In this manner the wheels are positioned automatically.

Trailers ride more than six inches lower on the new cars. This opens up the service to 12½ ft high trailers compared with the present 12-ft height limit. Since the dolly equipment may be easily attached and removed, it means that any trailer can be fitted for "Trailiner" shipment instead of only those with permanently attached brackets for tie-down chains.

The dollies do not interfere with normal road operation of the trailers. Piggy-Back, Inc. has developed a special front landing gear with the flange clamps built in, which costs little more than the standard landing gear and could replace it on trailers shipped regularly in piggy-back service.●

Tariff Improvement Making Progress

Of 105 Freight Tariff Improvement Bulletins issued, 63 have received favorable action by tariff makers

RAILROAD tariff makers are complying with both the letter and the spirit of recommendations of the Joint Committee of the Railroads' Tariff Research Group. This fact was established at a recent meeting in New York, at which the Committee presented a five-year progress report.

The first Freight Tariff Improvement Bulletin was issued in 1952. Since that time 105 Bulletins have been issued and more than 350 individual specifications have been approved by the Committee. The Committee is made up of representatives of the National Industrial Traffic League and railroad executives.

The Committee report showed that of the 105 Bulletins issued, compliance by tariff makers on 63 of them was "good or better." Compliance on eight Bulletins was listed as "good or fairly good," nine more were listed as "not satisfactory," and the final 25 were called "fair to not measurable." The last group includes late Bulletins which the Committee feels have not been in issue long enough to make an accurate appraisal.

The Bulletins cover a variety of subjects. No. 1, for example, approves the principle that the absence of national uniformity in tariff makeup is a basic problem. It must be overcome in improving tariffs from the standpoint of efficient use. It also points out that uniformity cannot be achieved and retained unless there is acceptance and rigid observance of standard tariff patterns.

According to the Committee, compliance with this Bulletin can be measured in terms of present tariff appearance and the attitude of tariff makers. Both are good. There is, of course, more room for uniformity, but further specifications are needed to achieve this.

In addition to the 105 Bulletins, the Committee reported on recommendations not included in the Bulletins. In one of these recommendations, No. 115, the Committee referred to the traffic executive associations, with its endorsement in principle, a study made by the Tariff Research Group. The study points up the advantages of the National Rate Basis grouping and the "Tariff of Tomorrow" plan. Reaction to the recommendation has been favorable, according to the Committee. •

Editor's Note: The Railroads' Tariff Research Group has offered DISTRIBUTION AGE readers copies of the complete report. The 16-page document includes a thumb-nail sketch of each of the 105 Improvement Bulletins, with a summary of tariff maker reaction to each. To get your copy:

Circle 76 on Reader Service Card Facing Page 49

Tomorrow's Trucks In National Show

Wide range of sizes, use of new materials and variety of engines permit purchase of trucks tailored to needs of each business

THE FIRST National Automobile Show since World War II brought record crowds to New York's Coliseum during December. Sharing interest with the latest cars was a complete show of trucks.

Range of Sizes

Trucks ranged from small delivery models to a huge 34-ton off-highway dump truck. In trucks, the emphasis was on shorter cabs to permit greater payloading. The result was an increase in cab-over-engine models. Several manufacturers showed models featuring bogie action.

Four companies—The White Motor Co., International Harvester Co., Diamond T, and Ford Motor Co.—showed tilting cabs.

White unveiled the newest of its highway series, the 4000. This model has the light-weight chassis features of its WC conventional line with a more powerful gasoline or turbodiesel engine.

Power-Lift Cab

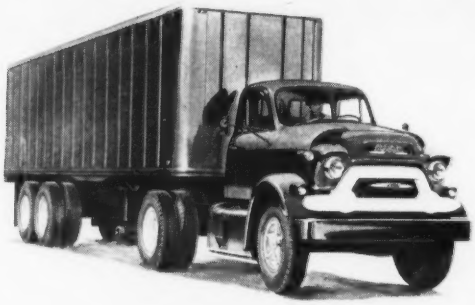
The White 3000 tractors, featuring wider visibility and power-lift cab, was shown. This power unit is available with a modern truck body engineered for palletized loading and unloading.

Autocar Division included in its exhibits a new 45,000-lb capacity planetary rear axle for off-highway service. Among the featured trucks was one of the new light-weight models (See What's New on Wheels, DISTRIBUTION AGE, Nov. 1956, P. 58). This diesel truck weighs 9500 lb, ready for the road with gvw of 55,000 lb and a turbodiesel engine.

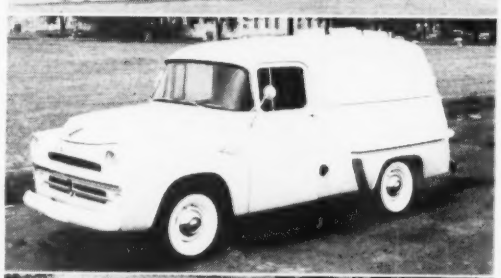
International Harvester Co. displayed nine representative trucks and a "live" cutaway V-8 engine.

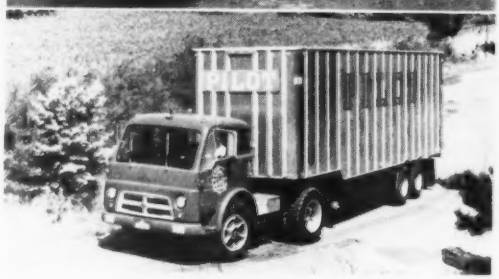
The six-wheel-drive SF-180 (6x6) was tilted in the

(Please Turn to Page 82)











Trucks shown to the right (top to bottom) are GMC, Willys, Dodge, Diamond-T and International Harvester

Piggy-Back Routing Guide

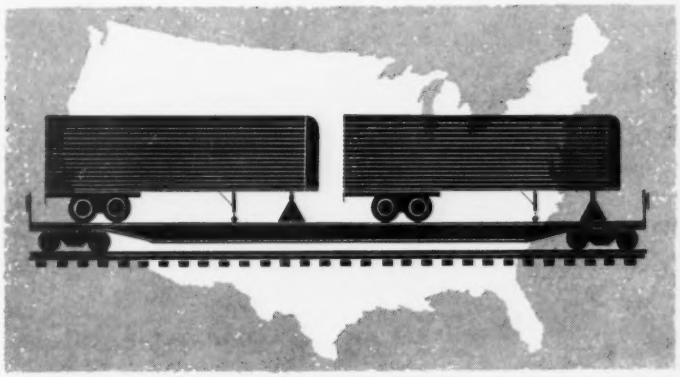
NOTES

1. With this revision, many carriers have announced plans for expanded piggy-back service within the near future. It is suggested, therefore, that origin and destination carriers be contacted for points not appearing in the Guide.

2. Contact agents of the **Santa Fe** for service to and from points in Ariz., Calif., Col., Ill., Kan., Mo., N. M., Okla., and Texas.

3. Contact agents of the **Union Pacific** for service to and from various points in Calif., Idaho, Nev., Ore., Utah, Wash., and Wyo.

4. **Burlington Truck Lines** offers service in connection with the **Chicago, Burlington & Quincy RR.** Contact BTL or the CB&Q for additional information.



HOW TO USE THE GUIDE

The Guide has been arranged so that, in a matter of seconds, the user can determine whether or not Piggy-Back service is available between any two or more particular points.

The Guide consists of two principal parts—an INDEX TO POINTS, beginning on this page, and a PIGGY-BACK ROUTING TABLE, beginning on Page 63.

The INDEX lists, alphabetically by states, the points to and from which TOFC is available. The TABLE, with "From" and "To" columns, lists cities by code number and shows to what points Piggy-Back is available from each originating city.

To determine if service is available between two specific points, look up both the originating and destination cities in the INDEX, noting the code numbers of each. (The code numbers also tell which railroads participate.)

Next, look up the originating city by code number in the "From" column of the TABLE. If the code number of the destination city appears in the "To" column—Piggy-Back is available between those two points.

As an example, a shipper wishing to Piggy-Back goods from Paoli, Pa., to Chicago, Ill., locates both cities in the INDEX. The Paoli code number is found to be 4A (with service provided by the Pennsylvania Railroad). Chicago is found to be 15A on the PRR.

Looking up Paoli (4A) in the "From" column of the TABLE, it is found that service is available via PRR to 15A (Chicago).

The same principle applies between points served by joint rail operations.

INDEX TO POINTS

ALABAMA

Birmingham ..... L&N-97
STLSF-51
Mobile STLSF-51

ARIZONA

For Santa Fe Rwy. System service see Note 2, above.

ARKANSAS

Bald Knob MOPAC-102
Baldwin MOPAC-102
STLSW-54
Benton MOPAC-102
Blytheville STLSW-54
Brinkley STLSW-54
Camden MOPAC-102
STLSW-54
Clarendon STLSW-54
Conway MOPAC-102
Crossett MOPAC-102
DeWitt STLSW-54
El Dorado MOPAC-102
Fair Oaks STLSW-54
Fisher STLSW-96
Fordyce STLSW-54
Forrest City MOPAC-102
Fort Smith KCS-81
MOPAC-102
STLSF-26A
Gillett STLSW-96
Gum Springs MOPAC-102
Hope MOPAC-102
Hunter STLSW-96
Jacksonville MOPAC-102
Jonesboro STLSW-54
Little Rock MOPAC-102
STLSW-54
McGehee MOPAC-102
McNeil STLSW-96
Malvern MOPAC-102
Monticello MOPAC-102
Morrillton MOPAC-102
No. Little Rock ... MOPAC-102
STLSW-54
Paragould MOPAC-102
STLSW-54
Pine Bluff MOPAC-102
STLSW-54
Searcy MOPAC-102
Shumaker STLSW-96
Stamps STLSW-96
Stuttgart STLSW-54
Texarkana KCS-81
MOPAC-102
STLSW-54
Truman STLSW-96
Van Buren MOPAC-102
Waldo STLSW-96
Warren MOPAC-102
Weiner STLSW-54
Wynne MOPAC-102

CALIFORNIA

Alameda WP-75
Bakersfield ..... AT&SF-65
SP-65
Fresno SP-65
Los Angeles ..... AT&SF-65
SP-65
Oakland SP-75
WP-75
Sacramento SP-76
WP-76
San Diego ..... AT&SF-75
San Francisco ..... AT&SF-65
SP-65
WP-75
San Jose SP-75
WP-75
San Leandro WP-75
Stockton SP-75
WP-75

For UP and AT&SF service see Notes 1 and 2, above.

COLORADO

Colorado Springs ..... CB&Q-77
UP-23
Denver BTL-77
CB&Q-77
UP-23
Greeley UP-23
Pueblo ..... CB&Q-77
UP-23
Sterling BTL-77
UP-23

For Santa Fe Rwy. System service see Note 2, Page 57.

CONNECTICUT

Ansonia ..... NYNH&H-48
Beacon Falls ..... NYNH&H-48
Branford ..... NYNH&H-48
Bridgeport ..... NYNH&H-48
Bristol ..... NYNH&H-48
Derby-Shelton ... NYNH&H-48
East Hartford ... NYNH&H-48
East Haven ..... NYNH&H-48
Fairfield ..... NYNH&H-48
Forestville ..... NYNH&H-48
Hartford ..... NYNH&H-48
Meriden ..... NYNH&H-48
Milford ..... NYNH&H-48
Milldale ..... NYNH&H-48
Naugatuck ..... NYNH&H-48
New Britain ..... NYNH&H-48
New Haven ..... NYNH&H-48
NYNH&H-48B
North Haven ... NYNH&H-48
Oakville ..... NYNH&H-48
Plainville ..... NYNH&H-48
Plantsville ..... NYNH&H-48
Seymour ..... NYNH&H-48
Southington ..... NYNH&H-48
Stratford ..... NYNH&H-48
Terryville ..... NYNH&H-48
Torrington ..... NYNH&H-48
Union City ..... NYNH&H-48
Wallingford ..... NYNH&H-48
Waterbury ..... NYNH&H-48
Watertown ..... NYNH&H-48
Waterville ..... NYNH&H-48
West Haven ..... NYNH&H-48

DELAWARE

Wilmington RDG-2

DISTRICT OF COLUMBIA

Anacostia ..... B&O-6
Benning ..... B&O-6
Georgetown ..... B&O-6
Langdon ..... B&O-6
Takoma Park ..... B&O-6
University ..... B&O-6
Washington ..... B&O-6

GEORGIA

Atlanta ..... L&N-99

IDAHO

Lewiston CAMP-66
For Union Pacific RR service see Note 3, Page 57.

ILLINOIS

* Service same as Chicago.
** Service same as St. Louis.

Alorton ..... **
Alton ..... CB&Q-15H
Argo ..... *
Aurora ..... CB&Q-15H
Austin Park ..... *
Avondale ..... *
Bellewood ..... *
Berger ..... *
Berwyn ..... *
Bixby ..... **
Blue Island ..... *
Bridgeport ..... *
Brighton Park ..... *
Broadview ..... *
Brookdale ..... *
Brookfield ..... *
Brooklyn ..... **
Burham ..... *
Burnside ..... *
Burr Oak ..... *
Cahokia ..... **
Calumet City ..... *
Calumet Park ..... *
Centerville ..... **
Chicago ..... AT&SF-15K
B&O-15
BTL-15H
CB&Q-15H
C&EI-15J
C&NW-15G
CGW-15F
Erie-15B
IC-15M
MONON-15E
NKP-15C
PRR-15A
SOO-15L
WAB-15D
Chicago Heights ..... B&O-15
C&EI-83
Chicago Lawn ..... *
Chicago Ridge ..... *
Cicero ..... *
Claburn ..... *
Clyde ..... *
Congress Park ..... *
Corwith ..... *
Cragin ..... *
Decatur WAB-15D
Deering ..... *
DesPlaines ..... *
Dolton ..... *
Dupo ..... **
E. St. Louis ..... **
East Side ..... *
Edison Park ..... *
Elsdon ..... *
Englewood ..... *
Evergreen Park ..... *
Fairmount City ..... **
Falling Springs ..... **
Fernwood ..... *
Forest Park ..... *
Franklin Park ..... *
Galesburg BTL-77
CB&Q-77
Galewood ..... *
Glenn ..... *
Globe ..... *
Grand Crossing ..... *
Granite City ..... **
Gresham ..... *
Harvey ..... *
Hawthorne ..... *
Hayford ..... *
Hazelcrest ..... *
Hegewisch ..... *
Hodgkins ..... *
Hollywood ..... *
Holland ..... C&EI-83
Homewood ..... *
Ironwood ..... *
Irving Park ..... *
Jefferson Park ..... *
Kensington ..... *
Kewanee BTL-77
CB&Q-77
La Grange ..... *
Landers ..... *
La Vergne ..... *
Lincolnwood ..... *
Macomb BTL-77
McCook ..... *
Madison ..... **
Maplewood ..... *
Markham ..... *
Maywood ..... *
Melrose Park ..... *
Mitchell ..... **
Moline BTL-77
CB&Q-77
Monsanto ..... **
Morgan Park ..... *
Morton Grove ..... *
Mt. Greenwood ..... *
National City ..... **
Niles ..... *
Norpaul ..... *
North Chicago ..... C&NW-1F
Norwood Park ..... *
Oakdale ..... *
Oak Park ..... *
Orchard Place ..... *
Ottawa ..... CB&Q-15H
Park Ridge ..... *
Peoria BTL-78
CB&Q-78
M&STL-56
Prairie Du Pont ..... **
Proviso ..... *
Pullman ..... *
Quincy BTL-78
CB&Q-78
Rhodes ..... *
Riverdale ..... *
River Forest ..... *
River Side ..... *
Rock Island BTL-78
Rose Hill ..... *
Rose Lake ..... **
Roseland ..... *
Schiller Park ..... *
Signal Hill ..... **
Skokie ..... *
Solvay ..... *
South Holland ..... B&O-15
C&EI-83
Stony Island ..... *
Streator ..... CB&Q-15H
Sugar Loaf ..... **
Summerdale ..... *
Summit ..... *
Thornton ..... B&O-15
C&EI-83
Tolson ..... **
Valley Jct. ..... **
Venice ..... **
Vulcan ..... **
Washington Heights ..... *
Washington Park ..... **
Waukegan ..... C&NW-1F
Weber ..... *
West Pullman ..... *
Wilson Avenue ..... *
Wireton ..... *
Yard Center ..... *

INDIANA

* Service same as Chicago.

Beech Grove ..... B&O-17
MONON-17B
PRR-17A
Ben Davis ..... B&O-17
MONON-17B
PRR-17A
Brightwood ..... B&O-17
MONON-17B
PRR-17A
Broad Ripple ..... B&O-17
MONON-17B
PRR-17A
Calumet ..... *
Clarksville ..... B&O-10
MONON-10B
PRR-10A
Claysburg ..... B&O-10
MONON-10B
PRR-10A
Eagle Woods ..... B&O-17
MONON-17B
PRR-17A
East Chicago ..... *
Evansville ..... C&EI-82
Fort Wayne ..... C&EI-82
WAB-50
Gary ..... *
Gibson ..... *
Grasselli ..... *
Hammond ..... *
Hessville ..... *
Indiana Harbor ..... *
Indianapolis ..... B&O-17
MONON-17B
PRR-17A
Jeffersonville ..... B&O-10
MONON-10B
PRR-10A
Mars Hill ..... B&O-17
MONON-17B
PRR-17A
Maywood ..... B&O-17
MONON-17B
PRR-17A
New Albany ..... B&O-10
MONON-10B
PRR-10A
Osborn ..... *
Port Fulton ..... B&O-10
MONON-10B
PRR-10A
Roby ..... *
Speedway ..... B&O-17
MONON-17B
PRR-17A
University Heights ..... B&O-17
MONON-17B
PRR-17A
Watson PRR-13
Whiting ..... *
Wolf Lake ..... *

IOWA

Bettendorf BTL-77
Burlington BTL-77
Carter Lake ..... C&NW-1E
Council Bluffs BTL-77
CB&Q-77
CGW-58
C&NW-1E
Creston BTL-77
CB&Q-77
Davenport BTL-77
Des Moines BTL-77
CB&Q-77
CGW-59
Fort Madison BTL-77
Keokuk BTL-77
Ottumwa BTL-78
CB&Q-78
Sioux City ..... CB&Q-77

KANSAS

Atchison MOPAC-105
Council Grove MOPAC-105
Dodge City ..... AT&SF-24
El Dorado MOPAC-105
Emporia ..... AT&SF-24
Eureka MOPAC-105
Frederick MOPAC-105
Great Bend ..... AT&SF-24
Hoisington MOPAC-105
Hope MOPAC-105
Hutchinson ..... AT&SF-24
Kansas City ..... AT&SF-25
BTL-77
CGW-25A
KCS-25B
STLSF-25C
Leavenworth MOPAC-105
Marquette MOPAC-105
Salina MOPAC-105
Topeka ..... AT&SF-24
Wichita ..... AT&SF-24
MOPAC-105
Winfield ..... AT&SF-24

KENTUCKY

* Service same as Cincinnati.
** Service same as Louisville.

Appliance Park ..... **
Audubon Park ..... **
Beechmont ..... **
Bellevue ..... *
Beuchel ..... **
Brent ..... *
Camp Taylor ..... **
Cherokee Gardens ..... **
Clifton ..... **
Crescent Hill ..... **
Dayton ..... *
Erlanger ..... *
Fairgrounds ..... **
Germantown ..... **
Highland Park ..... **
Latonia ..... *
Louisville ..... B&O-10
L&N-100
MONON-10B
PRR-10A
Ludlow ..... *
Melbourne ..... *
Newport ..... *
Parkland ..... **
Portland ..... **
Rubbertown ..... **
St. Matthews ..... **
Shawneeland ..... **
Shively ..... **
Southern Heights ..... **
South Louisville ..... **
Stevens ..... *
Strathmoor ..... **
Wilder ..... *

LOUISIANA

Addis ..... T&P-103
Alexandria KCS-81
MOPAC-102
Bastrop MOPAC-102
Boyce ..... T&P-103
Bunkie ..... T&P-103
Crowley ..... AT&SF-94
MOPAC-102
T&P-103
Cypress ..... T&P-103
Donaldson ..... T&P-103
Eunice MOPAC-102
SP-87
Keithville ..... T&P-103
Kinder MOPAC-102
Lafayette SP-90
Lake Charles KCS-81
MOPAC-102
SP-96
Luling ..... T&P-103
Melville ..... T&P-103
Monroe MOPAC-102
Natchitoches ..... T&P-103
New Orleans IC-55
KCS-80
L&N-80B
MOPAC-80C
SP-80
Oakdale MOPAC-102
Plaquemine ..... T&P-103
Shreveport KCS-81
STLSW-80A
SP-80A
T&P-103
South Mansfield KCS-81
T&P-103
Sterlington MOPAC-102
West Lake Charles KCS-81
SP-87

MAINE

Biddeford-Saco ..... B&M-107
Cummings ..... B&M-107
Deering Junction ..... B&M-107
Kennebunk ..... B&M-107
Kittery ..... B&M-107
North Berwick ..... B&M-107
Old Orchard Beach ..... B&M-107
Portland ..... B&M-107
Scarboro ..... B&M-107
Westbrook-Cumberland Mills ..... B&M-107
Woodfords ..... B&M-107

MARYLAND

Arlington WM-5A
Baltimore ..... B&O-5
WM-5A
Bethesda ..... B&O-5
Bladensburg ..... B&O-5
Brentwood ..... B&O-6
Brooklyn ..... B&O-5
Burnt Mills ..... B&O-6
Camden ..... B&O-5
Canton ..... B&O-5
WM-5A
Capital Heights ..... B&O-5
Chevy Chase ..... B&O-6
Claremont ..... B&O-5
Colmar Manor ..... B&O-6
Cottage City ..... B&O-6
Cumberland WM-5A
Curtis Bay ..... B&O-5
WM-5A
Dalecarlia ..... B&O-6
Druid WM-5A
Dundalk ..... B&O-5
Eastover ..... B&O-6
Fairfield ..... B&O-5
Forest Glen ..... B&O-6
Forest Heights ..... B&O-6
Four Corners ..... B&O-6
Fulton WM-5A
Georgetown Jct. ..... B&O-6
Green Meadows ..... B&O-6
Hagerstown WM-5A
Halethorpe ..... B&O-5
Hampstead WM-5A
Harford Road ..... B&O-5
Highlandtown ..... B&O-5
WM-5A
Hillcrest Heights ..... B&O-6
Hillandale ..... B&O-6
Hillen WM-5A
Holabird ..... B&O-5
Hyattsville ..... B&O-5
Langley Park ..... B&O-6
Lansdowne ..... B&O-5
Lewisdale ..... B&O-6
Linden ..... B&O-6
Locust Point ..... B&O-5
Kensington ..... B&O-6
Mt. Clare ..... B&O-5
Mt. Hope WM-5A
Mt. Rainier ..... B&O-6
Mt. Winnas ..... B&O-5
WM-5A
Orangeville WM-5A
Port Covington WM-5A
St. Denis ..... B&O-5
Seat Pleasant ..... B&O-6
Silver Springs ..... B&O-5
Sparrows Point ..... B&O-5
WM-5A
Suitland ..... B&O-5
Takoma Park ..... B&O-6
Wagner's Point ..... B&O-5
WM-5A
Walbrook WM-5A
Westport ..... B&O-5
WM-5A
Wheaton ..... B&O-6
White Oak ..... B&O-6
Woodside ..... B&O-6

MASSACHUSETTS

Abington ..... NYNH&H-48
Acushnet ..... NYNH&H-48

Allston ..... B&M-107
Amesbury ..... B&M-107
Andover ..... B&M-107
Arlington ..... B&M-107
Assonet ..... NYNH&H-48
Athol ..... B&M-107
Attleboro ..... NYNH&H-48
Avon ..... NYNH&H-48
Ayer ..... B&M-107
Baldwinville ..... B&M-107
Ballardville ..... B&M-107
Barrowsville ..... NYNH&H-48
Bedford ..... B&M-107
Belmont ..... B&M-107
Berlin ..... B&M-107
Beverly ..... B&M-107
Billerica ..... B&M-107
Blackstone ..... NYNH&H-48
Boston ..... B&M-107
NYNH&H-48
NYNH&H-48A
Bradford ..... B&M-107
Bridgewater ..... NYNH&H-48
Brighton ..... B&M-107
NYNH&H-48
Brockton ..... NYNH&H-48
Burrage ..... NYNH&H-48
Buzzards Bay ..... NYNH&H-48
Cabot ..... NYNH&H-48
Cambridge ..... B&M-107
NYNH&H-48
Cambridgeport ..... B&M-107
NYNH&H-48
Campello ..... NYNH&H-48
Canton Jct. ..... NYNH&H-48
Charlestown ..... B&M-107
NYNH&H-48
Charles River ..... NYNH&H-48
Chelsea ..... B&M-107
NYNH&H-48
City Mills ..... NYNH&H-48
Clicquot ..... NYNH&H-48
Cliftondale ..... B&M-107
Clinton ..... B&M-107
Cohasset ..... NYNH&H-48
Concord ..... B&M-107
Cordage ..... NYNH&H-48
Danvers ..... B&M-107
Danversport ..... B&M-107
Dedham ..... NYNH&H-48
Dighton ..... NYNH&H-48
Dorchester ..... B&M-107
Dover ..... NYNH&H-48
East Boston ..... B&M-107
NYNH&H-48
East Braintree ..... NYNH&H-48
East Douglas ..... NYNH&H-48
East Freetown ..... NYNH&H-48
Easton ..... NYNH&H-48
Edgeworth ..... B&M-107
Everett ..... B&M-107
NYNH&H-48
Fair Haven ..... NYNH&H-48
Fairmount ..... NYNH&H-48
Fall River ..... NYNH&H-48
Farnumsville ..... NYNH&H-48
Flint Village ..... NYNH&H-48
Fitchburg ..... B&M-107
Forest Hills ..... B&M-107
NYNH&H-48
Forge Village ..... B.&M-107
Foxboro ..... NYNH&H-48
Framingham ..... NYNH&H-48
Franklin ..... NYNH&H-48
Franklin Park ..... B&M-107
Gardner-Heywood ..... B&M-107
Gloucester ..... B&M-107
Graniteville ..... B&M-107
Greenbush ..... NYNH&H-48
Halifax ..... NYNH&H-48
Hamilton & Wenham ..... B&M-107
Harrison Square ..... B&M-107
NYNH&H-48
Haverhill ..... B&M-107
Hebronville ..... NYNH&H-48
Highland Lake ..... NYNH&H-48
Hingham ..... NYNH&H-48
Holbrook ..... NYNH&H-48
Hudson ..... B&M-107
Hyde Park ..... B&M-107
Ipswich ..... B&M-107
Jamaica Plain ..... B&M-107
Kendal Green ..... B&M-107
Kingston ..... NYNH&H-48
Lawrence ..... B&M-107
Lexington ..... B&M-107
Lincoln ..... B&M-107
Linden ..... B&M-107
Littleton ..... B&M-107
Lowell ..... B&M-107
Lynn ..... B&M-107
Lynnfield Center ..... B&M-107
Malden ..... B&M-107
Mansfield ..... NYNH&H-48
Maplewood ..... B&M-107
Marblehead ..... B&M-107
Marlboro ..... B&M-107
Mattapan ..... B&M-107
Maynard ..... B&M-107
Medfield ..... NYNH&H-48
Medfield Jct. ..... NYNH&H-48
Medford ..... B&M-107
NYNH&H-48
Medway ..... NYNH&H-48
Melrose ..... B&M-107
Merrimac ..... B&M-107
Methuen ..... B&M-107
Middleboro ..... NYNH&H-48
Milford ..... NYNH&H-48
Millbury ..... NYNH&H-48
Millis ..... NYNH&H-48
Millville ..... NYNH&H-48
Milton ..... NYNH&H-48
Montello ..... NYNH&H-48
Morrills ..... NYNH&H-48
Myricks ..... NYNH&H-48
Needham ..... NYNH&H-48
Needham Hgts. ..... NYNH&H-48
Neponset ..... B&M-107
NYNH&H-48
New Bedford ..... NYNH&H-48
Newburyport ..... B&M-107
Newton Centre
(Cook St.) ..... NYNH&H-48
Newton Upper Falls
NYNH&H-48
Norfolk ..... NYNH&H-48
North Andover ..... B&M-107
North Attleboro ..... NYNH&H-48
Northbridge ..... NYNH&H-48
North Cambridge ..... B&M-107
NYNH&H-48
North Chelmsford ..... B&M-107
North Dartmouth ..... NYNH&H-48
North Easton ..... NYNH&H-48
North Leominster ..... B&M-107
North Plymouth ..... NYNH&H-48
North Wilmington ..... B&M-107
North Woburn ..... B&M-107
Norton ..... NYNH&H-48
Norwood ..... NYNH&H-48
Norwood Central ..... NYNH&H-48
Oakdale ..... B&M-107
Oak Grove ..... B&M-107
Onset ..... NYNH&H-48
Peabody ..... B&M-107
Plainville ..... NYNH&H-48
Plymouth ..... NYNH&H-48
Pondville ..... NYNH&H-48
Quincy ..... NYNH&H-48
Quincy Adams ..... NYNH&H-48
Quinsigamond ..... NYNH&H-48
Randolph ..... NYNH&H-48
Raynham ..... NYNH&H-48
Reading ..... B&M-107
Readville ..... NYNH&H-48
Revere ..... B&M-107
NYNH&H-48
Rockland ..... NYNH&H-48
Roslindale ..... B&M-107
Roxbury ..... B&M-107
NYNH&H-48
Rowley ..... B&M-107
Salem ..... B&M-107
Salisbury ..... B&M-107
Saugus ..... B&M-107
Sandersville ..... NYNH&H-48
Scituate ..... NYNH&H-48
Sharon Hgts. ..... NYNH&H-48
Sherborn ..... NYNH&H-48
Shirley ..... B&M-107
Somerville ..... B&M-107
NYNH&H-48
South Acton ..... B&M-107
South Ashburnham ..... B&M-107
South Boston ..... B&M-107
South Braintree ..... NYNH&H-48
South Hanson ..... NYNH&H-48
South Middleton ..... B&M-107
South Sudbury ..... B&M-107
South Walpole ..... NYNH&H-48
Sterling Jct. ..... B&M-107
Stoneham ..... B&M-107
Stoughton ..... NYNH&H-48
Taunton ..... NYNH&H-48
Tewksbury ..... B&M-107
Topsfield ..... B&M-107
Tremont ..... NYNH&H-48
Tyngsboro ..... B&M-107
Unionville ..... NYNH&H-48
Uxbridge ..... NYNH&H-48
Wachusett ..... B&M-107
Wakefield ..... B&M-107
Walnut Hill ..... B&M-107
Walpole ..... NYNH&H-48
Walpole Hgts. ..... NYNH&H-48
Waltham ..... B&M-107
Wareham ..... NYNH&H-48
Watertown ..... B&M-107
Watuppa ..... NYNH&H-48
Waverly ..... B&M-107
Wayland ..... B&M-107
West Acton ..... B&M-107
West Boylston ..... B&M-107
West Bridgewater
NYNH&H-48
West Cambridge ..... B&M-107
NYNH&H-48
West Chelmsford ..... B&M-107
West Concord ..... B&M-107
West Hanover ..... NYNH&H-48
West Medford ..... B&M-107
Weston ..... B&M-107
Westport Factory
NYNH&H-48
West Roxbury ..... B&M-107
NYNH&H-48
Weymouth ..... NYNH&H-48
Whitins ..... NYNH&H-48
Whitman ..... NYNH&H-48
Wilkinsonville ..... NYNH&H-48
Wilmington ..... B&M-107
Winchester ..... B&M-107
Winchendon ..... B&M-107
Winslows ..... NYNH&H-48
Woburn ..... B&M-107
Wollaston ..... NYNH&H-48
Worcester ..... B&M-107
NYNH&H-48
Wrentham ..... NYNH&H-48

MICHIGAN

Allen Park WAB-49A
Dearborn WAB-49A
Detroit WAB-49A
C&EI-49B
Ecorse WAB-49A
Ferndale WAB-49A
Flint ..... C&EI-84
Grosse Pointe WAB-49A
Hamtramck WAB-49A
Hazel Park WAB-49A
Highland Park WAB-49A
Lansing ..... C&EI-84
Lincoln Park WAB-49A
Livonia WAB-49A
Melvindale WAB-49A
Muskegon ..... C&EI-84
Novi ..... C&EI-84
Oak Park WAB-49A
Oakwood WAB-49A
Pontiac ..... C&EI-84
Redford WAB-49A
River Rouge WAB-49A
Saginaw ..... C&EI-84
Van Dyke WAB-49A

MINNESOTA

Bingham GN-71
Brooklyn Center ..... CSTPM&O-1B
NP-70
Columbia Heights
CSTPM&O-1B
NP-70
Duluth ..... CSTPM&O-1D
GN-69
NP-69
Edina ..... CSTPM&O-1B
NP-70
E. Grand Forks GN-68
NP-68
Falcon Heights NP-70
Fridley NP-70
Golden Valley ..... CSTPM&O-1B
NP-70
Hopkins ..... CSTPM&O-1B
NP-70
Inver Grove NP-70
Lauderdale NP-70
Minneapolis ..... CB&Q-108
CSTPM&O-1B
GN-70
M&STL-57
NP-70
SOO-62
Morningside ..... CSTPM&O-1B
NP-70
Moorhead GN-71
NP-71
New Brighton ..... CSTPM&O-1B
NP-70
Newport ..... CSTPM&O-1B
NP-70
North St. Paul ..... CSTPM&O-1B
NP-70
Richfield ..... CSTPM&O-1B
NP-70
Roseville ..... CSTPM&O-1B
NP-70
St. Anthony ..... CSTPM&O-1B
NP-70
St. Louis Park ..... CSTPM&O-1B
NP-70
St. Paul ..... CB&Q-108
CSTPM&O-1B
CGW-60
GN-70
M&STL-57
NP-70
SOO-62
St. Paul Park ..... CSTPM&O-1B
NP-70
So. St. Paul ..... CMSTPM&O-1B
NP-70
W. St. Paul ..... CMSTPM&O-1B

MISSOURI

** Service same as St. Louis.

Alpha ..... **
Arloe ..... **
Baden ..... **
Ben Avis ..... **
Benton ..... **
Berkeley ..... **
Billman Spur ..... **
Brentwood ..... **
Bussen Spur ..... **
Carondelet ..... **
Carsonville ..... **
Caruthersville STLSW-54
Cheltenham ..... **
Clayton ..... **
Clifton Heights ..... **
Collopy Spur ..... **
Delmar Avenue ..... **
Eden ..... **
Ellendale ..... **
Ferguson ..... **
Glen Echo ..... **
Grant ..... **
Grasso Spur ..... **
Gravois ..... **
Gregg Station ..... **
Hazelwood ..... **
Hillsdale ..... **
Howard ..... **
Hydraulic ..... **
Jefferson Barracks ..... **
Jennings ..... **
Joplin MKT-104
STLSF-19D
Kansas City ..... AT&SF-25
BTL-77
CB&Q-77
CGW-25A
KCS-25B
MOPAC-106
STLSF-25C
WAB-25
Koberman ..... **
Koch ..... **
Lackland ..... **
Ladue ..... **
Lake Jct. ..... **
Lindenwood ..... **
Luther ..... **
Luxemburg ..... **
Maes Spur ..... **
Maplewood ..... **
Maryland Hgts. ..... **
Mutual ..... **
Normandy ..... **
Old Orchard ..... **
Olivette ..... **
Overland ..... **
Pagedale ..... **
Pine Lawn ..... **
Prospect Hill ..... **
Richmond Hgts. ..... **
Robertson ..... **
Rock Hill ..... **
St. Joseph BTL-77
CB&Q-77
St. Louis ..... B&O-19
BTL-78
CB&Q-78
C&EI-19E
IC-19L
L&M-19G
L&N-19F
MOPAC-106
NKP-19B
PRR-19A
STLSF-19D
STLSW-19H
WAB-19C
St. Vincents ..... **
Shellco ..... **
Shrewsbury ..... **
Skillman ..... **
Tower Grove ..... **
Tuxedo Park ..... **
University City ..... **
Vinita Park ..... **
Wellston ..... **

MONTANA

Benz NP-109
Big Horn NP-109
Billings BTL-77
CB&Q-77
NP-109
Blatchford NP-109
Brockway NP-109
Bull Mountain NP-109
Circle NP-109
Crane NP-109
Custer NP-109
East Billings NP-109
Fallon NP-109
Forsyth NP-109
Fort Keogh NP-109
Glendive NP-109
Green NP-109
Hathaway NP-109
Huntley NP-109
Hysham NP-109
Intake NP-109
Lindsay NP-109
Miles City NP-109
Murn NP-109
Myers NP-109
Nibbe NP-109
Newton NP-109
Pompey's Pillar NP-109
Rimroad NP-109
Rosebud NP-109
Sanders NP-109
Savage NP-109
Shirley NP-109
Sidney NP-109
Stipek NP-109
Terry NP-109

Tuslery NP-109
Ulmer NP-109
Waco NP-109
Worden NP-109

NEBRASKA

Auburn MOPAC-105
Florence ..... C&NW-1E
Fort Crook MOPAC-105
Grand Island BTL-77
Hastings BTL-77
CB&Q-77
Lincoln BTL-77
CB&Q-77
McCook BTL-77
Nebraska City MOPAC-105
Omaha BTL-77
CB&Q-77
C&NW-1E
MOPAC-105

NEVADA

For Union Pacific RR service see Note 3, Page 57.

NEW HAMPSHIRE

Atkinson ..... B&M-107
Derry ..... B&M-107
Dover ..... B&M-107
Durham ..... B&M-107
East Kingston ..... B&M-107
Exeter ..... B&M-107
Fitzwilliam ..... B&M-107
Goffs Falls ..... B&M-107
Hampton ..... B&M-107
Hampton Falls ..... B&M-107
Hayes ..... B&M-107
Jaffrey ..... B&M-107
Keene ..... B&M-107
Londonderry ..... B&M-107
Madbury ..... B&M-107
Manchester ..... B&M-107
Merrimack ..... B&M-107
Milton ..... B&M-107
Nashua ..... B&M-107
Newington ..... B&M-107
Newmarket ..... B&M-107
Newton Jct. ..... B&M-107
North Hampton ..... B&M-107
Peterboro ..... B&M-107
Plaistow ..... B&M-107
Portsmouth ..... B&M-107
Reeds Ferry ..... B&M-107
Rochester ..... B&M-107
Rockingham ..... B&M-107
Salem ..... B&M-107
Salmon Falls ..... B&M-107
Somersworth ..... B&M-107
Troy ..... B&M-107
Westville ..... B&M-107

NEW JERSEY

Aldene CofNJ-11E
LV-11
Allwood ..... DL&W-11B
Erie-11C
Ampere ..... DL&W-11B
Arlington CofNJ-11E
DL&W-11B
Erie-11C
PRR-11A
Athenia ..... DL&W-11B
Avenel PRR-11A
Barber CofNJ-11E
LV-11
PRR-11A
Bayonne CofNJ-11E
LV-11
PRR-11A
Bayway CofNJ-11E
Belleville Erie-11C
Belwood Park Erie-11C
Berkeley Hgts. ..... DL&W-100
Bernardsville ..... DL&W-100
Beverly PRR-3A
Bloomfield ..... DL&W-11B
Erie-11C
Boonton ..... DL&W-100
Bound Brook CofNJ-11E
Bridgeboro PRR-3A
Burlington PRR-3A
Camden PRR-3A
RDG-3
Carteret CofNJ-11E
Ceramics LV-11
Chatham ..... DL&W-11B
Clark LV-11
Clifton ..... DL&W-11B
Erie-11C
Cliffside Erie-11C
Cliffside Park Erie-11C
NYS&W-11B
Convent ..... DL&W-100
Cranford CofNJ-11E
LV-11
Delair PRR-3A
Delawanna ..... DL&W-11B
Denville ..... DL&W-101
Dover ..... DL&W-101
Dundee ..... DL&W-11B
Erie-11C
Dunellen CofNJ-11E
E. Orange ..... DL&W-11B
Erie-11C
Edgewater ..... NYS&W-11C
Edison LV-11
Elizabeth CofNJ-11E
PRR-11A
Elizabethport CofNJ-11E
Englewood Erie-11C
Englishtown PRR-3A
Ernston PRR-3A
Fair Lawn Erie-11C
Fairview Erie-11C
Fanwood CofNJ-11E
Far Hills ..... DL&W-100
Finderne CofNJ-11E
Fish House PRR-3A
Florence PRR-3A
Fords LV-11
Fort Lee Erie-11C
NYS&W-11B
Freehold PRR-3A
Garfield Erie-11C
Garwood CofNJ-11E
Gladstone ..... DL&W-101
Glen Ridge ..... DL&W-11B
Erie-11C
Grasselli CofNJ-11E
Greensand LV-11
Greenville CofNJ-11E
Erie-11C
LV-11
PRR-11A
Guttenberg CofNJ-11E
DL&W-11B
Erie-11C
NYS&W-11B
Haledon ..... DL&W-11B
Erie-11C
Harrison ..... DL&W-11B
Erie-11C
PRR-11A
Helmetta PRR-11A
Heyden LV-11
Highland Avenue ..... DL&W-11B
Highland Park PRR-3A
Hillside LV-11
Hoboken CofNJ-11E
DL&W-11B
Erie-11C
Hutchinson's Mills PRR-3A
Irvington LV-11
Jamesburg PRR-11A
Jersey City CofNJ-11E
DL&W-11B
Erie-11C
LV-11
PRR-11A
Kearny CofNJ-11E
DL&W-11B
Erie-11C
PRR-11A
Keasbeys CofNJ-11E
LV-11
Kingsland ..... DL&W-11B
Lake View ..... DL&W-11B
Leonia Erie-11C
Lincoln Park ..... DL&W-11B
Linden PRR-11A
Lindenwood CofNJ-11E
Little Falls ..... DL&W-11B
Erie-11C
Lyndhurst ..... DL&W-11B
Lyons ..... DL&W-100
Madison ..... DL&W-100
Mansville CofNJ-11E
Menlo Park PRR-11A
Mercerville PRR-3A
Metuchen LV-11
PRR-11A
Middlesex CofNJ-11E
Millburn ..... DL&W-11B
Millington ..... DL&W-100
Mont Clair ..... DL&W-11B
Montville ..... DL&W-11B
Morris Plains ..... DL&W-100
Morristown ..... DL&W-100
Mountain Lakes ..... DL&W-100
Mountain View ..... DL&W-11B
Mt. Tabor ..... DL&W-101
Murray Hill ..... DL&W-100
Newark CofNJ-11E
DL&W-11B
Erie-11C
LV-11
PRR-11A
New Brunswick PRR-11A
No. Arlington ..... DL&W-11B
No. Bergen Erie-11C
NYS&W-11B
Nixon LV-11
Nutley Erie-11C
Oak Tree LV-11
Orange ..... DL&W-11B
Erie-11C
Outcalt PRR-11A
Palisades Park Erie-11C
Palmyra PRR-3A
Parsipanny-Troy Hills ..... DL&W-11B
Passaic ..... DL&W-11B
Erie-11C
Paterson ..... DL&W-11B
Erie-11C
Pavonia PRR-3A
Peapack ..... DL&W-101
Perth Amboy CofNJ-11E
LV-11
PRR-11A
Plainfield CofNJ-11E
Prospect Park ..... DL&W-11B
Erie-11C
Rahway PRR-11A
Ridgefield Erie-11C
Riverside PRR-3A
Riverton PRR-3A
Rockaway ..... DL&W-11B
Roebling PRR-3A
Roselle CofNJ-11E
LV-11
Roselle Park CofNJ-11E
LV-11
Roseville Avenue ..... DL&W-11B
Rutherford Erie-11C
Seaboard ..... DL&W-11B
Secaucus ..... DL&W-11B
Erie-11C
Sewaren CofNJ-11E
Somerville CofNJ-11E
So. Amboy PRR-11A
So. Kearny ..... DL&W-11B
So. Orange ..... DL&W-11B
So. Plainfield LV-11
Spotswood PRR-11A
Stelton LV-11
PRR-11A
Stirling ..... DL&W-100
Summit ..... DL&W-11B
Tennet PRR-3A
Totowa ..... DL&W-11B
Towaco ..... DL&W-11B
Townley LV-11
Tremley CofNJ-11E
Tremely Point CofNJ-11E
Trenton PRR-3A
Union LV-11
Union City CofNJ-11E
DL&W-11B
Erie-11C
Upper Montclair ..... DL&W-11B
Valentines LV-11
Wallington ..... DL&W-11B
Erie-11C
Warners CofNJ-11E
Watsessing ..... DL&W-11B
Waverly CofNJ-11E
DL&W-11B
Erie-11C
LV-11
PRR-11A
Weehawken CofNJ-11E
DL&W-11B
Erie-11C
West Carteret CofNJ-11E
Westfield CofNJ-11E
West New York CofNJ-11E
DL&W-11B
Erie-11C
NYS&W-11B
West Orange Erie-11C
West Paterson ..... DL&W-11B
Woodbridge LV-11
PRR-11A

NEW MEXICO

For Santa Fe Rwy. System service see Note 2, Page 57.

NEW YORK

Arrowhead ..... DL&W-28
Baldwinsville ..... DL&W-28
Big Flats ..... DL&W-28
Binghamton ..... DL&W-28
Black Rock ..... DL&W-27C
LV-27A
Blasdell LV-27A
NKP-27
WAB-27B
Blissville LI-29
Blissville Docks LI-29
Brooklyn ..... B&O-11E
CofNJ-11E
DL&W-11B
Erie-11C
LV-11
PRR-11A
Buffalo ..... DL&W-27C
LV-27A
NKP-27
WAB-27B
Corona LI-29
Conklin ..... DL&W-28
Conklin Center ..... DL&W-28
Corning ..... DL&W-28
Depew ..... DL&W-28
LV-27A
Elmira ..... DL&W-28
Elmira Hgts. ..... DL&W-28
Forest Hills LI-29
Fresh Pond LI-29
Fulton ..... DL&W-28
Gang Mills ..... DL&W-28
Gibson ..... DL&W-28
Glendale LI-29
Harriett ..... DL&W-27C
LV-27A
Hillcrest ..... DL&W-28
Horseheads ..... DL&W-28
Johnson City ..... DL&W-28
Lackawanna ..... DL&W-27C
LV-27A
Lancaster ..... DL&W-28
Laurel Hill LI-29
Long Island City LI-29
Maspeth LI-29
Minetto ..... DL&W-28
New York ..... B&O-11E
CofNJ-11E
DL&W-11B
Erie-11C
LV-11
NYNH&H-11D
PRR-11A
Niagara Falls LV-27A
Nichols Siding LI-29
Nimmonsburg ..... DL&W-28
No. Tonawanda LV-27A
Oakdale ..... DL&W-28
Oswego ..... DL&W-28
Painted Post ..... DL&W-28
Port Dickinson ..... DL&W-28
Riverside ..... DL&W-28
Solvay ..... DL&W-28
So. Corning ..... DL&W-28
Stiles ..... DL&W-28
Suspension Bridge LV-27A
Syracuse ..... DL&W-28
Tonawanda LV-27A
NKP-27
WAB-27B
Union ..... DL&W-28
Waverly ..... DL&W-28
W. Elmira ..... DL&W-28
Williamsville LV-27A
Winfield LI-29

NORTH DAKOTA

Bismarck NP-68
Dickinson NP-68
Fargo GN-71
NP-71
Grand Forks GN-68
NP-68
Jamestown NP-68
Mandan NP-68
Minot GN-68
Valley City NP-68
West Fargo GN-71
NP-71
Williston GN-68

OHIO

* Service same as Cincinnati.
** Service same as Cleveland.

Addyston ..... *
Akron Erie-30A
PRR-30
Amberly Village ..... *
Anderson Ferry ..... *
Arlington Hgts. ..... *
Ashland Erie-47
Avondale ..... *
Barberton Erie-31A
PRR-31
Bedford PRR-32
Bellaire ..... B&O-7
PRR-7A
Bexley PRR-33
Bond Hill ..... *
Bratenahl ..... **
Bridgeport ..... B&O-7
PRR-7A
Brighton ..... *
Brooklyn ..... **
Brooklyn Hgts. ..... **
Brookpark ..... **
Carthage ..... *
Cincinnati ..... B&O-8
L&N-8B
PRR-8A
Cleveland ..... B&O-16
Erie-16B
NKP-16B
PRR-16A
Cleveland Hgts. ..... **
Columbus PRR-33
Cuyahoga Falls PRR-41
Cuyahoga Hgts. ..... **
Cumminsville ..... *
Dayton PRR-34
Delhi ..... *
Elmwood Place ..... *
Euclid ..... **
Evanston ..... *
Evendale ..... *
Fairmount ..... *
Garfield Hgts. ..... **
Girard ..... B&O-22
Erie-35A
PRR-35
Grand View Hgts. PRR-33
Hamilton PRR-12
Hanford PRR-33
Hartwell ..... *
Hubbard Erie-42
Hyde Park ..... *
Idlewild ..... *
Independence ..... **
Ivorydale ..... *
Kent Erie-47

Lakewood ..... **
Lancaster PRR-9A
Leavittsburg Erie-43
Linndale ..... **
Linwood ..... *
Lockland ..... *
Lowellsville ..... B&O-22
Madisonville ..... *
Maple Hgts. ..... **
Mariemont ..... *
Martin's Ferry ..... B&O-7
PRR-7A
McDonald Erie-44
Middletown PRR-12
Mineral Ridge Erie-44
Mingo Jct. PRR-12
Newbergh Hgts. ..... **
Niles ..... B&O-18
Erie-18B
PRR-18A
Northside ..... *
Norwood ..... *
Oakley ..... *
Oakwood Village PRR-34
Parma ..... **
Reading ..... *
Red Bank ..... *
Rittman Erie-47
St. Bernard ..... *
Sandusky ..... C&EI-84
Sedamsville ..... *
Shaker Hgts. ..... **
Sharonville ..... *
Steubenville PRR-37
Struthersville PRR-38
Tallmadge Erie-47
Trautman Erie-47
Toledo ..... B&O-20
NKP-20A
WAB-20B
Toronto PRR-39
Upper Arlington PRR-33
Vaughan ..... *
Wadsworth Erie-47
Walbridge ..... B&O-20
NKP-20A
WAB-20B
Warren ..... B&O-21
Erie-21B
PRR-21A
West Side ..... *
Winton Place ..... *
Woodlawn ..... *
Wyoming ..... *
Yorkville PRR-40
Youngstown ..... B&O-22
Erie-22B
PRR-22A

OKLAHOMA

Ardmore ..... AT&SF-24
Bartlesville ..... AT&SF-24
MKT-104
Cleveland MKT-24
Cushing MKT-24
Enid ..... AT&SF-24
McAlester MKT-24
Muskogee MKT-24
STLSF-51
Oklahoma City ..... AT&SF-26
MKT-24
STLSF-26A
Nelagony MKT-24
Ponca City ..... AT&SF-24
Pryor MKT-24
Tulsa ..... AT&SF-24
MKT-24
STLSF-24
Vinita MKT-24
Wagoner MKT-24

OREGON

Coos Bay SP-65
Pendleton NP-67
Portland GN-67
NP-67
St. Helens WTCO-74
West Linn WTCO-74
For Union Pacific RR Service, see Note 3, Page 57.

PENNSYLVANIA

Abrams RDG-2
Aldan PRR-4A
Akron RDG-2
Alburtis RDG-2
Allegheny ..... B&O-9
B&LE-9B
PRR-9A
Allenport PRR-9A
Allentown RDG-2
Ambler RDG-2
Ambridge PRR-9A
Arcola RDG-2
Ardmore PRR-4A
Arnold PRR-9A
Ashland RDG-2
Aspinwall PRR-9A
Auburn RDG-2
Avon RDG-2
Bairdford ..... B&LE-9B
Baldwin Twp. ..... B&LE-9B
PRR-9A
Barto RDG-2
Beaver Falls PRR-9A
Bechtelsville RDG-2
Becks Run ..... B&LE-9B
Belfry RDG-2
Belle Bridge ..... B&LE-9B
Belle Vernon PRR-9A
Ben Avon PRR-9A
Berne RDG-2
Berwyn PRR-4A
Bessemer ..... B&O-9
B&LE-9B
PRR-9A
Best ..... B&LE-9B
Bethayres RDG-2
Bethlehem RDG-2
Birdell RDG-2
Birdsboro RDG-2
Blandon RDG-2
Blawnox PRR-9A
Bonair RDG-2
Bower Hill PRR-9A
Bowers RDG-2
Boyertown RDG-2
Brackenridge PRR-9A
Bradamore RDG-2
Braddock ..... B&O-9
B&LE-9B
PRR-9A
Braeburn PRR-9A
Brentwood ..... B&LE-9B
PRR-9A
Bridgeport RDG-2
Bridgeville PRR-9A
Briquette ..... B&LE-9B
Bristol PRR-4A
Brunots Island PRR-9A
Bryn Athyn RDG-2
Bryn Mawr PRR-4A
Buckingham RDG-2
Bulger PRR-9A
Burgettstown PRR-9A
Bustleton PRR-4A
RDG-2
Butler ..... B&LE-9B
Butler Transfer ..... B&LE-9B
Canonsburg PRR-9A
Carnegie PRR-9A
Castle Shannon ..... B&LE-9B
PRR-9A
Cedar Hollow RDG-2
Chalfont RDG-2
Chambersburg WM-5A
Charleroi PRR-9A
Cheltenham RDG-2
Chester PRR-4A
RDG-2
Cheswick ..... B&LE-9B
Cheyney PRR-4A
Churchville RDG-2
Clairton ..... B&LE-9B
PRR-9A
Clairton Jct. ..... B&LE-9B
Clifton PRR-4A
Clifton Hgts. PRR-4A
Coatesville RDG-2
Collegeville RDG-2
Colmar RDG-2
Conestoga RDG-2
Conshohocken PRR-4A
RDG-2
Conway PRR-9A
Corliss ..... B&LE-9B
PRR-9A
Cornwell Hgts. PRR-4A
Corsons RDG-2
Courtdale ..... DL&W-28
Courtney PRR-9A
Crafton PRR-9A
Creighton PRR-9A
Cressona RDG-2
Culmerville ..... B&LE-9B
Curtisville ..... B&LE-9B
Darby ..... B&O-4
PRR-4A
Demmler ..... B&LE-9B
Denver RDG-2
Devon PRR-4A
Dillinger RDG-2
Dixmont PRR-9A
Donora PRR-9A
Dormont ..... B&LE-9B
PRR-9A
Douglassville RDG-2
Downingtown RDG-2
Doylestown RDG-2
Drexel Hill PRR-4A
Duffs ..... B&LE-9B
Duquesne ..... B&O-9
B&LE-9B
PRR-9A
Duryea ..... DL&W-28
Earnest PRR-4A
E. Liberty ..... B&LE-9B
PRR-9A
E. McKeesport PRR-9A
E. Penn Jct. RDG-2
E. Petersburg RDG-2
E. Pittsburgh ..... B&O-9
B&LE-9B
PRR-9A
Economy PRR-9A
Eddington PRR-4A
Eddystone PRR-4A
RDG-2
Edgely PRR-4A
Edgewood PRR-9A
Edwardsville ..... DL&W-28
Elkins Park RDG-2
Elrama PRR-9A
Elverson RDG-2
Elwyn PRR-4A
Emmaus RDG-2
Emsworth PRR-9A
Ephrata RDG-2
Essington PRR-4A
RDG-2
Etna ..... B&O-9
PRR-9A
Exeter ..... DL&W-28
Exton PRR-4A
RDG-2
Fairless PRR-4A
RDG-2
Fair Oaks PRR-9A
Farm School RDG-2
Farrell Erie-22B
PRR-22A
Fernwood PRR-4A
Fleetwood RDG-2
Floreffe PRR-9A
Flourtown RDG-2
Folcroft PRR-4A
Fort Washington RDG-2
Forty-Fort ..... DL&W-28
Freedom PRR-9A
Freeport PRR-9A
Gascola ..... B&LE-9B
Gibraltar RDG-2
Gladwynne RDG-2
Glassport ..... B&LE-9B
Glenfield PRR-9A
Glen Mills PRR-4A
Glen Riddle PRR-4A
Glen Shaw ..... B&O-9
Glenside RDG-2
Graterford RDG-2
Green Lane RDG-2
Greenmont RDG-2
Green Ridge ..... DL&W-28
Greensburg PRR-9A
Gwynedd Valley RDG-2
Hall ..... B&LE-9B
Hamburg RDG-2
Hanover WM-14
Hartranft RDG-2
Harwick ..... B&LE-9B
Hatboro RDG-2
Hatfield RDG-2
Hays ..... B&LE-9B
PRR-9A
Haysville PRR-9A
Hazelwood ..... B&LE-9B
Herrs Island ..... B&LE-9B
PRR-9A
Holland RDG-2
Homestead ..... B&O-9
B&LE-9B
PRR-9A
Homewood ..... B&LE-9B
PRR-9A
Hosensack RDG-2
Houston PRR-9A
Howellville RDG-2
Huntington Valley RDG-2
Icedale RDG-2
Indianola ..... B&LE-9B
Ingram PRR-9A
Irvin ..... B&O-9
B&LE-9B
PRR-9A
Irwin PRR-9A
Isabella RDG-2
Ivyland RDG-2
Janney RDG-2
Jeanette PRR-9A
Jeffersonville PRR-4A
Jenkintown RDG-2
Joanna RDG-2
Johnsville RDG-2
Kennywood Park ..... B&LE-9B
Kimberton RDG-2
King of Prussia RDG-2
Kingston ..... DL&W-28
Kneedler RDG-2
Kutztown RDG-2
Lancaster RDG-2
Langhorne (Penndel) RDG-2
Lansdale RDG-2
Lansdowne PRR-4A
Large PRR-9A
Leak Run ..... B&LE-9B
Lebanon RDG-2
Leetsdale PRR-9A
Leesport RDG-2
Lenni PRR-4A
Lima PRR-4A
Lincoln RDG-2
Linfield RDG-2
Linwood RDG-2
Lititz RDG-2
Logan's Ferry PRR-9A
Lorane RDG-2
Lucas ..... B&LE-9B
Luzerne ..... DL&W-28
Lyons RDG-2
Macungie RDG-2
Malvern PRR-4A
Manheim RDG-2
Manor PRR-9A
Marcus Hook PRR-4A
RDG-2
McCrady Siding ..... B&LE-9B
McDonald PRR-9A
McKeesport ..... B&O-9
B&LE-9B
PRR-9A
McKees Rocks ..... B&LE-9B
Meadowbrook RDG-2
Media PRR-4A
Mertztown RDG-2
Midland PRR-9A
Mifflin Jct. ..... B&LE-9B
Mill Lane RDG-2
Millvale ..... B&O-9
PRR-9A
Millway RDG-2
Minooka ..... DL&W-28
Miquon PRR-4A
RDG-2
Mogees PRR-4A
RDG-2
Mohrsville RDG-2
Monocacy RDG-2
Monongahela PRR-9A
Monongahela Jct. ..... B&LE-9B
Moore PRR-4A
Moosic ..... L&WV-28A
Morganza PRR-9A
Morrisville PRR-4A
Morton PRR-4A
Mt. Lebanon Twp. ..... B&LE-9B
Mt. Oliver ..... B&LE-9B
PRR-9A
Munhall ..... B&O-9
B&LE-9B
PRR-9A
Myerstown RDG-2
Natrona PRR-9A
Neshaminy Falls RDG-2
Neville Island ..... B&LE-9B
New Berlinville RDG-2
New Brighton PRR-9A
New Britain RDG-2
New Centerville RDG-2
New Kensington PRR-9A
Newtown (Bucks Co.) RDG-2
Newtown ..... B&LE-9B
Noble RDG-2
Noblestown PRR-9A
Norristown PRR-4A
RDG-2
North Hills RDG-2
North Wales RDG-2
Oakdale PRR-9A
Oak Hill ..... B&LE-9B
Oakmont PRR-9A
Oaks RDG-2
Old Forge ..... DL&W-28
Oreland RDG-2
Palm RDG-2
Paoli PRR-4A
Penllyn RDG-2
Penn PRR-9A
Pennsburg RDG-2
Perkiomenville RDG-2
Philadelphia ..... B&O-4
PRR-4A
RDG-2
Philmont RDG-2
Phoenixville RDG-2
Pine Forge RDG-2
Pitcairn PRR-9A
Pittsburgh and Corporate Limits ..... B&O-9
B&LE-9B
PRR-9
Pittston ..... DL&W-28
Plymouth Meeting PRR-4A
RDG-2
Point Bridge PRR-9A
Port Clinton RDG-2
Port Kennedy RDG-2
Port Vue Borough ..... B&LE-9A
Pottstown RDG-2
Pottsville RDG-2
Prescott RDG-2
Primos PRR-4A
Providence ..... DL&W-28
Radnor PRR-4A
Rahns RDG-2
Rankin ..... B&O-9
B&LE-9B
Reading RDG-2
Red Hill RDG-2
Reinholds RDG-2
Richland RDG-2
River Valley ..... B&LE-9B
Riverton ..... B&LE-9B
Robesonia RDG-2
Rochester PRR-9A
Rockdale ..... B&LE-9B
Rocky Glen ..... L&WV-28A
Rosemont PRR-4A
Rothsville RDG-2
Royersford RDG-2
Rushland RDG-2
Russellton ..... B&LE-9B

St. Leonard RDG-2
St. Peters RDG-2
Salford RDG-2
Saxonburg ..... B&LE-9B
Schuylkill Haven RDG-2
Schwenksville RDG-2
Scranton ..... DL&W-28
Seiple RDG-2
Sewickley PRR-9A
Shadyside ..... B&LE-9B
PRR-9A
Shamrock RDG-2
Sharon Erie-45
PRR-22A
Sharon Hill PRR-4A
Sharpsburg ..... B&O-9
PRR-9A
Sharpsville Erie-46
Sheridan RDG-2
Shoemakersville RDG-2
Sinking Spring RDG-2
Souderton RDG-2
Southampton RDG-2
So. Duquesne ..... B&O-9
PRR-9A
Springdale PRR-9A
Springfield PRR-9A
Spring Grove WM-14
Spring Mill PRR-4A
RDG-2
Spring Mount RDG-2
Stevens RDG-2
Strafford PRR-4A
Stowe RDG-2
Suplee RDG-2
Swarthmore PRR-4A
Swissvale PRR-9A
Swoyersville ..... DL&W-28
Tarentum PRR-9A
Taylor ..... DL&W-28
Temple RDG-2
Topton RDG-2
Trafford PRR-9A
Trainer PRR-4A
RDG-2
Trevose RDG-2
Tuckerton RDG-2
Turtle Creek PRR-9A
Unity Jct. ..... B&LE-9B
Universal ..... B&LE-9B
Valley Forge RDG-2
Vera Cruz RDG-2
Verona PRR-9A
Vinemont RDG-2
Virginia ..... L&WV-28A
Wagontown RDG-2
Wallingford PRR-4A
Walker's Mill PRR-9A
Warwick RDG-2
Washington PRR-9A
Waverly ..... DL&W-28
Wawa PRR-4A
Wayne PRR-4A
Waynesboro WM-5A
Wernersville RDG-2
West Chester PRR-4A
West Conshohocken RDG-2
West Elizabeth PRR-9A
West Liberty ..... B&LE-9B
West Mansfield PRR-9A
West Mifflin ..... B&LE-9B
PRR-9A
West Point RDG-2
Wheatland Erie-22B
PRR-9A
Whitaker ..... B&LE-9B
PRR-9A
White Bear RDG-2
Wilkensburg PRR-9A
Willow Grove RDG-2
Wilmerding PRR-9A
Wilson ..... B&LE-9B
PRR-9A
Wittmer ..... B&O-9
Womelsdorf RDG-2
Woodlane RDG-2
Woodmont RDG-2
Wycombe RDG-2
Wylie ..... B&LE-9B
Wyndmoor RDG-2
Wyoming ..... DL&W-28
Yerkes RDG-2
York WM-14
Zieglersville RDG-2
Zionsville RDG-2

RHODE ISLAND

Albion ..... NYNH&H-48
Ashton ..... NYNH&H-48
Barrington ..... NYNH&H-48
Berkeley ..... NYNH&H-48
Bristol ..... NYNH&H-48
Centredale ..... NYNH&H-48
Cranston ..... NYNH&H-48
Darlington ..... NYNH&H-48
E. Providence Wharf
NYNH&H-48
Finast ..... NYNH&H-48
Forestdale ..... NYNH&H-48
Fox Point ..... NYNH&H-48
Harbor Jct. Wharf
NYNH&H-48
Lonsdale ..... NYNH&H-48
Manville ..... NYNH&H-48
Onleyville ..... NYNH&H-48
Pawtucket ..... NYNH&H-48
Phillipsdale ..... NYNH&H-48
Providence ..... NYNH&H-48-48C
Riverside ..... NYNH&H-48
Rumford ..... NYNH&H-48
Slatersville ..... NYNH&H-48
South Providence ..... NYNH&H-48
Valley Falls ..... NYNH&H-48
Warren ..... NYNH&H-48
West Barrington ..... NYNH&H-48
Woonsocket ..... NYNH&H-48

TENNESSEE

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Wills Point ..... T&P-103

UTAH

For Union Pacific RR service see Note 3, Page 57.

WASHINGTON

Aberdeen NP-72
Auburn NP-63
Camas WTCO-74
Centralia GN-63
NP-63
Chehalis NP-63
Everett GN-73
NP-73
Fort Lewis NP-63
Grandview NP-64
Hoquiam NP-72
Kelso NP-63
Kennewick NP-63
Kent NP-63
Lacey NP-63A
Longview GN-63
NP-63
Millwood SI-73
North Prosser NP-64
Olympia NP-63
Prosser NP-64
Puyallup NP-63
Seattle GN-67A
NP-67A
Spokane GN-73
NP-73
Sumner NP-63
Sunnyside NP-64
Tacoma GN-67A
NP-67A
Toppenish NP-64
Trentwood NP-73A
SI-73
Vancouver GN-67
NP-67

Walla Walla NP-64
Wapato NP-64
West Tacoma NP-63
Yakima NP-64
For Union Pacific RR service, see Note 3, Page 57.

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Beechbottom PRR-7A
Benwood .....B&O-7
Chester PRR-7A
Elm Grove .....B&O-7
Follansbee PRR-7A
McMechan .....B&O-7
Moundsville .....B&O-7
Triadelphia .....B&O-7
Warwood .....B&O-7
PRR-7A
Weirton PRR-7A
Wellsburg PRR-7A
Wheeling .....B&O-7
PRR-7A

WISCONSIN

Appleton .....C&NW-1C
SOO-61
Combined Locks ....C&NW-1C
De Pere .....C&NW-1C
Eau Claire .....CSTPM&O-1D
Fond du Lac .....C&NW-1C
Green Bay .....C&NW-1C
Kaukauna .....C&NW-1C
Kimberly .....C&NW-1C
Kohler .....C&NW-1C
Manitowoc .....C&NW-1C
Menasha .....C&NW-1C
SOO-61
Milwaukee .....C&NW-1A
Neenah .....C&NW-1C
SOO-61
Oshkosh .....C&NW-1C
Plymouth .....C&NW-1C
Port Washington ....C&NW-1C
Sheboygan .....C&NW-1C
Sheboygan Falls ....C&NW-1C
Superior .....CMSTPM&O-1D
GN-69
NP-69
Two Rivers .....C&NW-1C

WYOMING

Casper BTL-77
CB&Q-77
For Union Pacific service, see Note 3, Page 57.

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ONTARIO

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CP-79
London CN-79
CP-79
Toronto CN-79B
CP-79B
Windsor CN-79C

QUEBEC

Montreal CN-79A
CP-79A

PIGGY-BACK ROUTING TABLE

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1B	1A-1C-1D-1F-2-3-3A-4-4A-5-5A-6-7-7A-8-8A-9-9A-10-10A-10B-11-11A-11B-11C-12-13-14-15G-16B-16C-18B-19G-20A-21B-22B-24-26-26A-27-27B-28-28A-29-33-34-35A-42-43-44-45-46-49A-50-51A-51B-52-52A-53-54-80-80A-81-83-85-86-87-88-89-90-91-92-93-94-95-96-100-101-102-103-104-105-106
1C	1A-1F-2-3-3A-4-4A-5-5A-6-7-7A-8-8A-9-9A-10-10A-10B-11-11A-11B-11C-12-13-14-15G-16B-16C-18B-19G-20A-21B-22B-24-26-26A-27-27B-28-28A-29-33-34-35A-42-43-44-45-46-49A-50-51A-51B-52-52A-53-54-80-80A-81-83-85-86-87-88-89-90-91-92-93-94-95-96-100-101-102-103-104-105-106
1D	1A-1F-2-3-3A-4-4A-5-5A-6-7-7A-8-8A-9-9A-10-10A-10B-11-11A-11B-11C-12-13-14-15G-16B-16C-18B-19G-20A-21B-22B-24-26-26A-27-27B-28-28A-29-33-34-35A-42-43-44-45-46-49A-50-51A-51B-52-52A-53-54-80-80A-81-83-85-86-87-88-89-90-91-92-93-94-95-96-100-101-102-103-104-105-106
1E	2-3-3A-4-4A-5-5A-6-7-7A-8-8A-9-9A-10-10A-10B-11-11A-11B-11C-12-13-14-15G-16B-16C-18B-19G-20A-21B-22B-24-26-26A-27-27B-28-29-33-34-35A-42-43-44-45-46-49A-50-51-51A-51B-52-52A-53-53A-54-87-94-95-96-100-101
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3A	1A-1B-1C-1D-1E-1F-7A-8A-9A-10A-12-13-15A-16A-17A-18A-19A-21A-22A-24-26-26A-30-31-32-33-34-35-36-37-38-39-40-41-51-51A-51B-52-52A-53A-80-80A-81-85-86-87-88-90-91-93-94-95-96-102-103-104-105-106
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7	1A-1B-1C-1D-1E-1F-4-5-6-8-10-15-17-19-20-24-26-26A-51-51A-51B-52-52A-53A-54-80-80A-81-85-86-87-88-90-91-93-94-95-96-102-103-104-105-106
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11B	1A-1B-1C-1D-1E-1F-9B-10B-15C-15D-16C-17B-19B-19C-20A-20B-23-24-25-26-26A-27C-28-49A-50-51-51A-51B-52-52A-53A-54-80-80A-81-82-85-86-87-88-90-91-93-94-95-96-102-103-104-105-106-107
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18	4-5-6-8-10-11E-15-17-19-24-26-26A-51-51A-51B-52-52A-53A-54-80-80A-81-85-86-87-88-90-91-93-94-95-96-102-103-104
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108	15H-77-78-102-103-105-106
109	68-69-70-71

RAILROAD ABBREVIATIONS

AT&SF—Atchison, Topeka & Santa Fe Rwy
B&O—Baltimore & Ohio Railroad
B&LE—Bessemer & Lake Erie Railroad
B&M—Boston & Maine Railroad
BTL—Burlington Truck Lines
CamP—Camas Prairie Railroad
CN—Canadian National Railways
CP—Canadian Pacific Railway
CofNJ—Central Railroad of New Jersey
CB&Q—Chicago, Burlington & Quincy RR
C&EI—Chicago & Eastern Illinois Railroad
CGW—Chicago Great Western Railway
C&NW—Chicago and Northwestern Rwy
CSTPM&O—Chicago, St. Paul, Minneapolis and Omaha Railway
DL&W—Delaware, Lackawanna and Western Railroad
Erie—Erie Railroad
FW&D—Fort Worth and Denver Railway
GN—Great Northern Railway
IC—Illinois Central Railroad
KCS—Kansas City Southern Railway
LI—Long Island Railroad
L&M—Litchfield & Madison Railway
L&N—Louisville & Nashville Railroad
LV—Lehigh Valley Railroad
L&WV—Lackawanna and Wyoming Valley
MKT—Missouri-Kansas & Texas Railroad
M&STL—Minneapolis & St. Louis Railway
MONON—Monon Railroad
MOPAC—Missouri Pacific Railroad Co.
NKP—New York, Chicago and St. Louis Railroad (Nickel Plate)
NP—Northern Pacific Railway
NYNH&H—New York, New Haven and Hartford Railroad
NYS&W—New York, Susquehanna & Western Railroad
PRR—Pennsylvania Railroad
RDG—Reading Company
SI—Spokane International Railroad
SOO—Soo Line Railroad
SP—Southern Pacific Company
STLSF—St. Louis San Francisco Railway
STLSW—St. Louis Southwestern Railway (Cotton Belt)
T&P—Texas and Pacific Railway Company
UP—Union Pacific Railroad
WAB—Wabash Railroad
WM—Western Maryland Railway
WP—Western Pacific Railroad
WTCO—Western Transportation Company

Delaware and Hudson Railroad, Lehigh & Hudson River Railway, New York, Ontario & Western Railway and Pittsburgh & West Virginia Railway participate in this traffic as intermediate carriers.

Know Your "MARKS"?

A number of traffic and transportation people have written us describing their frustration in attempting to discover how we alter the carrier trade marks each month. Some carrier people even had trouble detecting changes in their own marks.

How good are your powers of visual recognition? Most of the 12 marks below should be familiar to you. Most, but not all, have been changed in some manner. See if you can detect the changes. Try the quiz on your friends, the results may surprise you.

1 

2 

3 

4 

5 

6 

7 

8 

9 

10 

11 

12 

List Your Answers Below (No Cheating, Please)

1 _____	5 _____	9 _____
2 _____	6 _____	10 _____
3 _____	7 _____	11 _____
4 _____	8 _____	12 _____

(Please Turn to Page 75 for Unaltered Trade Marks)

Telephone Expedites Storage

Legible warehouse inventories and money saved result from application of telephone and dictating machine to operation of loading platforms at large warehouse storing household goods and industrial equipment

A UNIQUE use of telephone and dictating machine has been put to work by Merchants Transfer and Storage Co., Washington, D. C., in solving the problem of illegible warehouse inventories.

One result of the move has been saving money.

A substantial part of the Company's business is storage of household goods.

As materials for storage are taken off vans at the loading platform, each item is listed, its number assigned, and its condition noted. A tag with the identifying number is fastened to it.

Formerly, a checker wrote the warehouse inventory as he examined the goods. Then a typist copied his listing. Illegible writing resulted in both checkers and typists losing time. When warehouse workers were not called to the office to decipher an illegible listing, typists took a guess and inaccurate inventories resulted.

Good checkers never seem to be good writers. The problem became especially acute in winter when the writer's hands were cold.

Merchants solved this problem by letting the checkers dictate the lists directly to typists over the telephone or on dictating machines. They installed telephone jacks on the loading platform.

When a van pulls in with a load of storage goods, a checker plugs in the telephone, tells the operator he wants to dictate, and she

Using a telephone headset, the checker dictates a warehouse inventory to a typist in the company office



When a typist is not available, the checker dictates into the microphone of a dictating machine on wheeled stand



By V. C. Warren

connects him with a typist. The checker is equipped with a headset of the type worn by telephone operators, with a long stretch cord to permit him to move about the platform. The typist has a headset too, and types the data as the checker dictates it.

When a typist is unavailable, the checker uses a dictating machine. This also is equipped with headset and long, stretch cord.

It takes a couple of weeks to train a man to dictate. He learns by listening to his own records. The chief trick is to keep the mouthpiece close to the lips to prevent the entrance of street noises.

Money has been saved principally because of a saving in time. Under the old system, the checker needed an assistant to tag and handle equipment. Now, released from the writing job, his hands are free for these tasks.

Drivers of out-of-town vans like the system because they no longer have to wait for inventories to be typed. When the warehouse checker checks the last piece off the van, the inventory is finished and ready for the driver.•

While man unloads van, checker tags furniture and dictates list over phone





Current of the river channels logs into the sorter. The haul-up belt, supplied by Link Belt, can move up to 200 cords of wood per hour

Floating Log Diverter

Conveyor system cuts size of crew sorting logs floated from Maine woods for two mills

IT TOOK Hurricane Edna to bring about a new idea in log sorting.

For years, logs from northern Maine have been floated to pulp and paper mills on the Kennebec River. When they reach Winslow, logs are divided between two mills.

Until 1954 this was done by men working with long poles from three bridges. There were three shifts and a crew of 90 sorted 2000 cords a day.

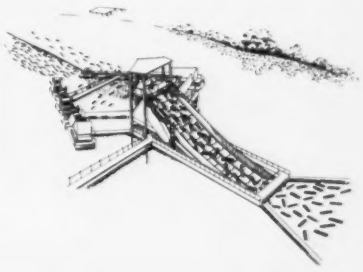
Then, Hurricane Edna swept the bridges and booms away. Hollingsworth and Whitney Division of Scott Paper Co., owners of the Winslow mill, called in a consulting engineer.

The result was a floating conveyor system. This new system pulls up to 200 cords of logs from the river in an hour, hauls them up an inclined conveyor, and delivers them by means of feeder belts and live roller conveyors to two sorting belts.

During the 1955 season log sorting was at the old rate of 2000 cords per day but this was done by two shifts with a crew of only 28. The operation can be stepped up to 3000 cords.

Safety was another gain. Sorters now have the logs pass them, waist high, on sorting belts.

Logs are lined up side by side on the belts. Men on one side pull off logs with red marking and those on the other side pull off green-marked logs. •





Prestressed concrete girders and cylindrical columns support sixty "Priest's Caps" which make up east end of Le Havre warehouse where cotton imports are stored

Special Shed Stores Cotton in Boom Season

To meet demands of a new buying system, LeHavre provides additional warehouse space for cotton by erecting fireproof shed with roof of concrete vaults

By John Grindrod

DA European Correspondent

A NOVEL type of shed has been designed to meet the needs of the French cotton trade, which, under existing conditions, calls for extensive fireproof quayside storage facilities at the main importing centre of Le Havre for a comparatively short period of the year.

During the war storage facilities for imported cotton, most of which comes from the U. S., were disrupted by enemy action.

New Buying Pattern

Since 1947, the buying of cotton gradually has passed from a central organisation into private hands, but a different pattern of trade from that in being before the war has sprung up. Then, most of the cotton was bought by middlemen or brokers. Not only was "spot" cotton purchased but there were extensive arbitrage operations on the futures market. The spinning mills then purchased from the cotton merchants. This practice often involved storage of the cotton at the port over considerable periods.

The recent return to freedom of buying has cut out the services of the middleman. Deals are for "spot" cotton only, and the granting of buying quotas to the spinners only has induced some foreign sellers to open direct agencies in the spinning areas. Le Havre has now become a port of transit rather than a port of storage, but still handles about 65 per cent of the cotton imported into France.

Most U. S. cotton is bought on loading weight and is not weighed on arrival. The shipping companies, however, unload so quickly that it is not possible, during unloading, to make up the various lots according to their markings. This means that room and equipment is necessary for sorting operations.

It was with these needs, as well as the need to reduce fire risk, in mind that, as a first stage in the reconstruction programme, a new cotton shed was built. Vast in area, the shed has a minimum of intermediate stanchions and it is possible rapidly to undertake the different handling operations, which follow unloading, under cover.

In the eastern part of the shed a novel type of roofing has been incorporated in the building. This consists of ten rows of six concrete vaults resting on a mesh of prestressed concrete girders, which, in their turn, are supported by cylindrical columns. The sixty vaults or domes are of the shape known as "Priest's Cap," this design having been decided upon as a precaution against fire. Two particular advantages are afforded by this construction method. As the tie rods are embedded in the concrete there are no uncovered ties to melt with any excessive heat, thereby causing the building, or section of the building, to collapse.

The skylight of each dome is made of special thermolux glass to counter the effect of the sun's rays on the cotton. Four of these panes of glass, however, are more fragile than the rest and would be the first to break in the event of fire. Their breaking would transform the vault into a chimney or air shaft for hot gases. Thus, by sacrificing, at the worst, that part of the shed involved, it would avoid the creation of converging draughts which might spread the fire to the rest of the shed. •

Within the LAW



By Leo T. Parker Legal Consultant, Distribution Age

WAREHOUSING

Who is responsible for delivery of goods to thieves posing as warehouse employes?

One legal question particularly foremost in the minds of several leaders involves the responsibility for improper delivery of merchandise. One reader wrote, as follows: "Regarding our conversation and discussion on delivery of merchandise to the wrong person, assuming that a warehouseman orders a carrier to deliver certain merchandise at his warehouse and on arrival this carrier delivers the merchandise to thieves who claim they are warehouse employes, who must stand this loss?"

A case was decided only last month which clearly holds that if a carrier delivers merchandise to an unidentified person who has apparent authority to accept delivery neither the carrier, seller, nor consignor is responsible for wrong or improper delivery.

For example, in The R—— Co. v. The L—— Distributing Co., 111 Atl. (2d) 613, the testimony showed facts, as follows: A truck driver named B—— was employed by the R—— Co. B—— was ordered by an official of the L—— Distributing Co. to transport from the R—— Co.'s place of business six television sets to the warehouse of the L—— Distributing Co. B—— transported the six sets to L——'s warehouse. He had been given by his employer a delivery slip in duplicate, a white copy for L—— and a yellow copy to be signed by L—— as a receipt. When B—— arrived at L——'s warehouse, he backed his truck inside the warehouse at the platform and two men, whom he had never seen before, were at the tail gate of his truck. They had opened the warehouse door for him. He carried the television sets to the tail gate of the truck and the two men took them off the tail gate. One of the men signed the yellow copy of the receipt with a "W" and returned it to B——.

A few weeks later it was discovered that the L—— Distributing Co. had not received the television sets and that the two men who had received the sets did not work for the L—— Distributing Co. In other words, the sets apparently were stolen or misappropriated by the two men who had received them from B——. The L—— Distributing Co. sued the R—— Co. for $1,515, the value of the six television sets.

The legal counsel for the L—— Distributing Co. argued that the R—— Co. was responsible since B——, an employe of the R—— Co., had delivered the sets to two unidentified men, not agents of the L—— Distributing Co., who opened the door of the warehouse.

It is important to note that the higher court held that the L—— Distributing Co. must stand the loss, saying:

"The question before us whether the delivery of these television sets inside the L—— warehouse, to which B—— had been directed by L—— to deliver them, constituted delivery to L——. Here, it is admitted that B—— was told by L—— to take the television sets "to the Jackson Street warehouse." He was not told at what location there to deliver them or to what person or persons delivery should be made. We must conclude that these men, who during a business day opened the warehouse door from the inside, took the television sets from the truck, and placed them on the platform, had authority apparent to B—— to receive them. We are not of opinion that B—— was negligent in not inquiring as to the names of the men or of looking them over so carefully as to be able to describe them."



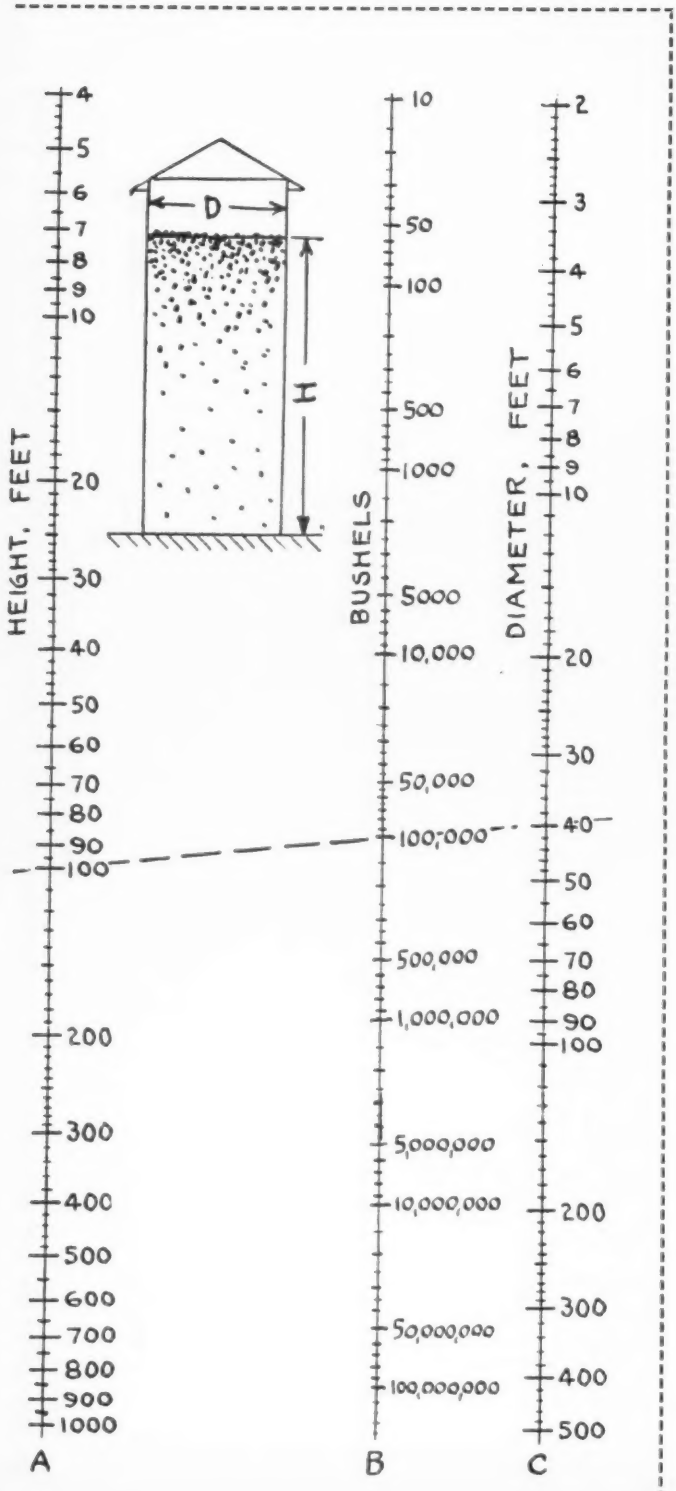
Ribbon of stencil paper is cut by Mayor Theodore Lams, of Mount Prospect, Ill., to mark the formal opening of the new Weber Addressing Machine Co., Inc. plant. At the mayor's left is Joseph Weber, chairman of the Board. Left to right in the picture are: James Thomas, plant manager; Arthur Wagner, sales representative; C. E. Ritter, president; S. W. Lent, purchasing agent; Mayor Lams; Joseph Weber; Cloyce Hunter, Marilyn Hunter; Mrs. Cloyce Hunter and Mrs. Joseph Weber

For comparison, see G—— & G—— Ltd. v. B——, 1022, 2 K.B. 155. Here a suit was brought by a seller to recover the price of wine which it was alleged had been sold and delivered to a buyer who denied the delivery. The wine was delivered to the purchaser's address by a carrier who was engaged by the seller. Unidentified persons at the seller's address appropriated the wine.

This higher court held that the purchaser must bear the loss, and said:

"A seller who is told to deliver goods at the purchaser's premises discharges his obligations if he delivers them there without negligence to a person apparently having authority to receive them. His duty is to deliver the goods at the proper place, and, of course, to take all proper care to see that no unauthorized person receives them. He is under no obligation to do more. If the purchaser has been unfortunate enough to have had access to his premises obtained by some apparently respectable person who takes his goods and signs for them in his absence, the loss must fall on him, and not on the innocent carrier or seller."

Quick Calculator for Materials Handling



A chart for figuring the number of bushels in a cylindrical bin when the height and diameter are known

By W. F. Schaphorst

BY use of the chart at left, it becomes a comparatively simple matter to determine the number of bushels in any cylindrical bin. Bin sizes range up to 500 ft in diameter and 1000 ft in height.

To use the chart, simply run a straight line from Column A, which represents the height of the bin in feet, to Column C, which represents the diameter of the bin in feet. The point of intersection between this line and Column B gives the number of bushels in the bin. No pencil figuring is necessary.

The example shown asks how many bushels are in a cylindrical container 100 ft high and 40 ft in diameter. The line from 100 in Column A to 40 in Column C intersects Column B at 100,000. This indicates that the bin will hold 100,000 bushels.

The chart can be used in reverse, to determine the size of a bin that must be built to hold a given number of bushels.

If the storage requirement is for 100,000 bushels, a straight line through 100,000 in Column B gives any number of possible dimensions.

Quick Calculators appearing in previous issues of DISTRIBUTION AGE included a chart for figuring the amount of materials conveyed or to be conveyed, another for figuring the number of feet of rope, hose, cable, etc., in any coil, a third for figuring the amount of bulk materials in any conical pile, and a fourth for figuring the weight of steel plates.

Quick Calculators which will appear in future issues of DISTRIBUTION AGE will include one for figuring the relationship between kilowatts and horsepower in materials handling, another for figuring the degree of grades up which materials must be transported, and a third for figuring time required to handle filling materials.

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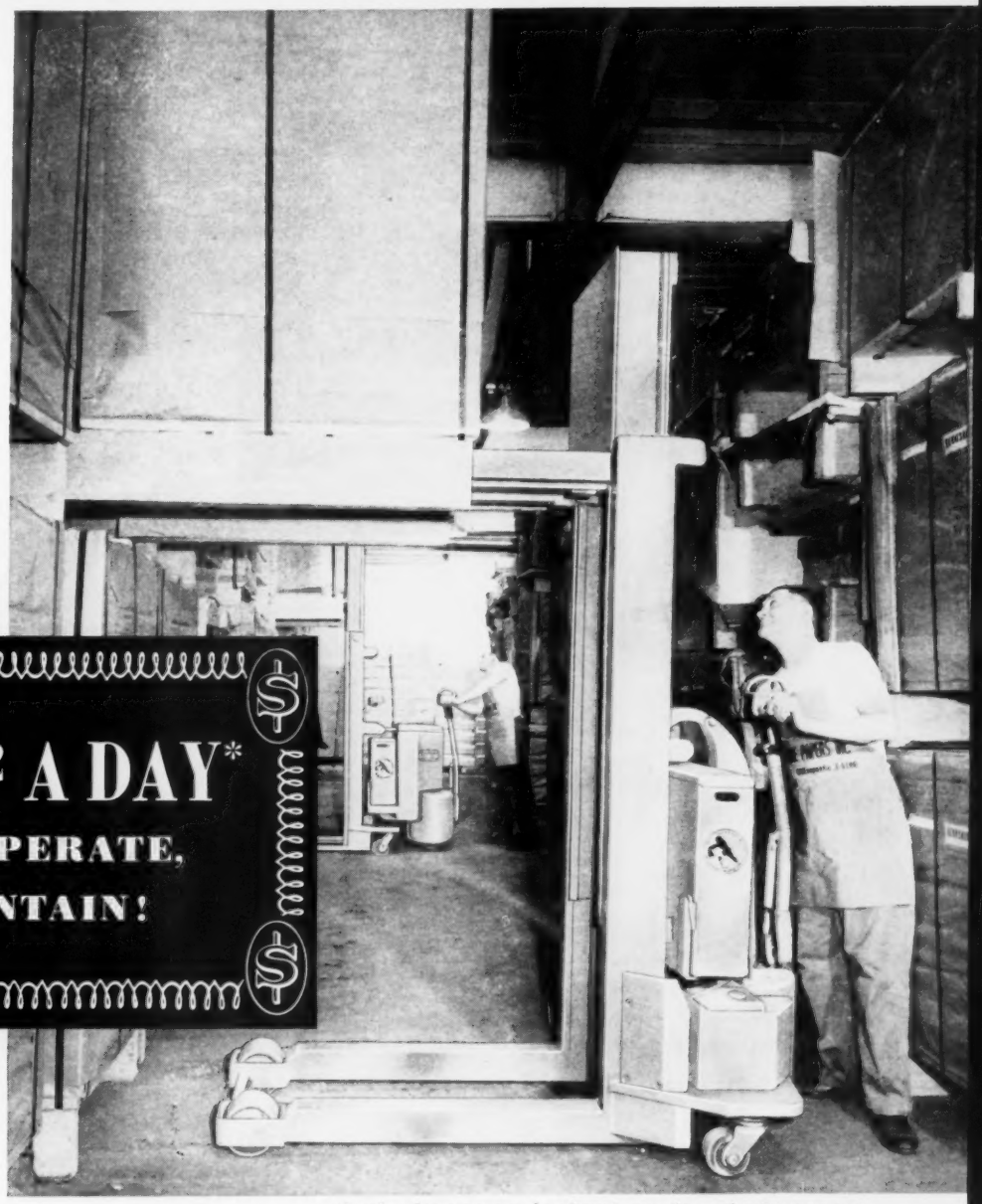
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Aircraft Mfgr.	has 20 L-S in use	reordered 4
Electrical Mfgr.	has 121 L-S in use	reordered 8
Automotive Parts Mfgr. . . .	has 32 L-S in use	reordered 5
Rubber Goods Mfgr.	has 18 L-S in use	reordered 3
Photographic Supplies Mfgr. . .	has 44 L-S in use	reordered 2

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Company ..... **Title** .....

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Circle No. 13 on Card, Facing Page 49, for more information

Reciprocal . . .

(Continued from Page 29)

connection. It must be "in the public interest" and be "practicable, without substantially impairing the ability of a common carrier by railroad owning or entitled to enjoyment of terminal facilities to handle its own business."

In the event the carriers are unable to agree, the Commission may fix just and reasonable compensation, "to be ascertained on the principle controlling compensation in condemnation action."

That principle is briefly that the measure of damages is the difference between the value of the property before and after taking. The question is what the owner has lost—not what the taker has gained.

In determining just compensation the Commission probably will follow the rule that the decisive fact to be considered is the loss which the opening of the terminal causes to the owning railroad.

Switching Arrangements

Carriers may, under certain circumstances, refuse to enter into reciprocal switching arrangements. In other cases the Commission has required carriers to enter into them. A number of cases involving such decisions are cited below.

When switching arrangements would compel a railroad to turn over traffic to its competitor and thus short-haul itself, a carrier may be sustained in its refusal to do so. Failure of carrier to include certain industries in tariff provisions for reciprocal switching, and to switch cars and provide charges therefore, is not an unreasonable practice in violation of Section 1 (6).

This has been established when complainant in effect sought routes over other lines and the use of the switching line only for switching operation. This practice would short-haul the carrier and bring the situation within the limitation in Section 15 (4) on the Commission's power to prescribe through routes.[1]

The performance of reciprocal switching for one industry and not another has been held unduly preferential. Such a practice is in violation of Section 3. It must, however, be shown that the conditions affecting the preferred industry are substantially similar to those affecting the industry prejudiced by the refusal to switch. The situation must be substantially similar from a transportation standpoint. Also, the preference must be shown to be the proximate cause of injury to the industry alleged to be prejudiced.[2]

Switching cars from one grain elevator to and from connecting lines at a stated charge, but refusing to accord this rate to other grain dealers in the district, was held to be unduly preferential.[3]

Refusal to perform switching between connections and industry located on one side of a street in which spur track is located while performing a like service for other industries located on the opposite side of the street was held to be an unlawful discrimination.[4]

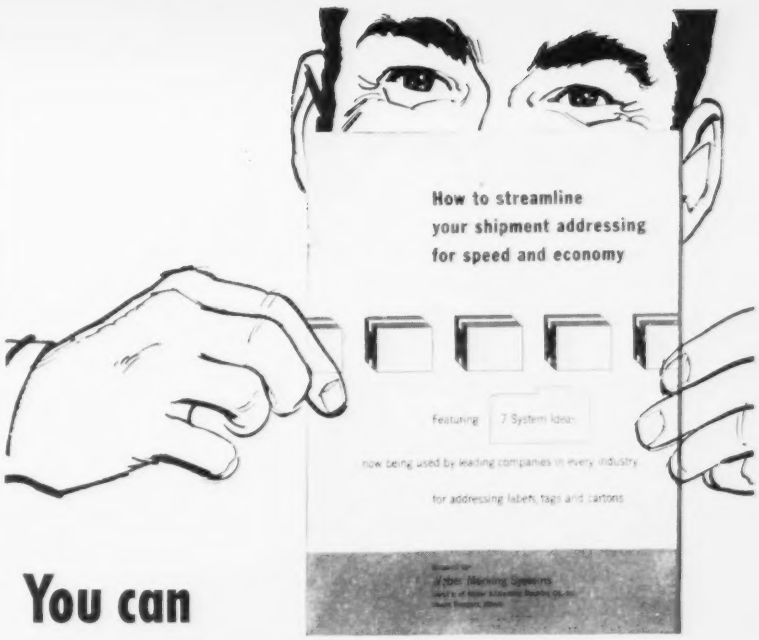
Competitive Relationship

A lumber company not accorded reciprocal switching was found not subject to an unreasonable practice or to be unjustly discriminated against. But the fact that a competing lumber company received switching of like traffic was found to prefer it and prejudice the lumber company not receiving switching.[5]

Similarly, the failure of a railroad to provide reciprocal switching at one station while maintaining such arrangements at other points, was found not to violate Section 3 in the absence of a showing that complainant had any competitors at the other points.[6]

No undue prejudice was found in refusal to perform reciprocal switching where no showing was made that complainant competed with other receivers of freight.[7] And where a railroad refused to perform reciprocal switching for certain industries, while performing such switching for another industry at the same point under similar circumstances and conditions, there was no finding of undue prejudice. Here the prejudiced and preferred industries were not

(*Please Turn Page*)



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Reciprocal . . .

(Continued from Preceding Page)

in competition, and denial of the service to the latter would not remedy the injury suffered by complainant.[2]

Undue prejudice must ordinarily be capable of correction by an alternative order. Where it is not shown that shippers and receivers would receive any benefit if a carrier should withdraw from reciprocal switching arrangements at other points, no undue or unreasonable prejudice is found.[9]

Fact that an auction house was not accorded reciprocal switching, and will in some cases have to pay switching charges on certain reconsigned shipments does not, of itself, condemn the failure to accord reciprocal switching when the auction house will be substantially as well off as other auction houses.[10]

Proposal to eliminate reciprocal switching to and from a fair grounds was found not justified when it would put shippers to expense and inconvenience of trucking freight from down-town team tracks through the city.[11]

The Commission has said that if carriers enter into reciprocal switching arrangements in one zone within a city, they must do so in other zones where conditions are the same.[12]

Refusal of railroad to include certain industries as entitled to reciprocal switching was found not to violate the Act where the yard is too small to satisfy the needs of the railroad's own business, to say nothing of the business of connecting lines.[13]

Operating Conditions

Traffic and operating difficulties encountered in effecting interchange in the situation where reciprocal switching is sought, have an important bearing in determining the lawfulness of refusal to interchange.[14]

Refusal of carriers to switch competitive traffic to and from another carrier on the same terms as non-competitive traffic while interchanging all traffic with each other on the same terms has been held unjustly discriminatory.[15] Practice of the L&N of regularly switching for the C&O and refusing to switch competitive traffic for all other connecting rail carriers at Louisville was found unduly prejudicial to such other carriers, their patrons, and their traffic.[16]●

[1] Frank P. Miller Paper Co. v. Penna. R.R., 62 I.C.C. 705, 80 I.C.C. 314; Hillsboro Coal Co., v. C. C. & St. L. Ry., 63 I.C.C. 401; Port of N. Y. Authority v. A.,T.&S.F.Ry., 144 I.C.C. 514; City of Sheboygan, Wis., v. C.&N.W.Ry., 227 I.C.C. 472; Goddard Realty Co. v. N.Y.,C.& St.L.R.R., 229 I.C.C. 497; Northwest Metal Prod., Inc. v. C.,M.,St.P.&P.R.R., 272 I.C.C. 401.

[2] Goddard Realty Co. v. N.Y.C.&St.L.R.R., 229 I.C.C. 497.

[3] City of Nashville v. L.&N.R.R., 33 I.C.C. 76.

[4] U. S. Button Co. v. C.,R.I.&P.Ry., 32 I.C.C. 149.

[5] Veenstra Lbr. & Supply Co. v. C.&N.W. Ry., 279 I.C.C. 203.

[6] Northwest Metal Prod., Inc. v. C.,M.,St.P.& P.R.R., 272 I.C.C. 401.

[7] Crossfield Ice Co. v. S.Ry., 232 I.C.C. 795.

[9] City of Sheboygan, Wis. v. C.&N.W.Ry., 227 I.C.C. 472.

[10] Green Fruit Auction Co.'s Elimination from Industries, 68 I.C.C. 89.

[11] Switching at Beaumont, 112 I.C.C. 125.

[12] York Mfrs. Asso. v. P.R.R., 107 I.C.C. 219.

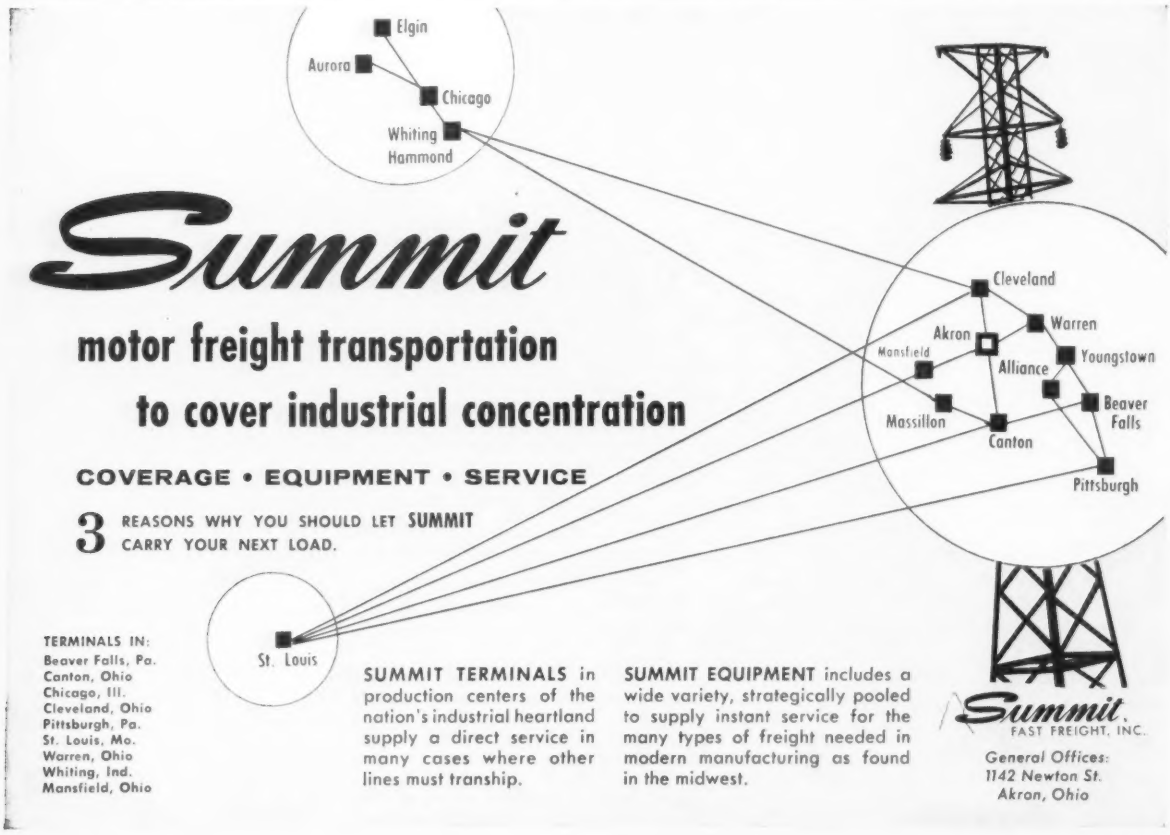
[13] Reciprocal Switching at Knoxville, Tenn., 266 I.C.C. 681.

[14] Lockport Board of Commerce v. N.Y.C. R.R., 89 I.C.C. 144.

[15] City of Nashville v. L.&N.R.R., 33 I.C.C. 76; traffic Bureau of Nashville v. L.&N.R.R., 28 I.C.C. 533.

[16] Louisville Board of Trade v. L.&N.R.R., 40 I.C.C. 679.

(Resume Reading on Page 30)



. . . Cuts Taxes

(Continued from Page 35)

ance deductions become the smaller of the two. This is why it is important to consider current and future earnings before selecting a depreciation method.

For example, if current earnings are low, or if a new line of merchandise will not produce earnings for several years, it might be better taxwise to use the straight-line method.

This method does not speed up depreciation deductions. It spreads them out equally over the estimated useful life of the asset. The straight-line method permits, in a sense, saving for deductions against future earnings.

There usually is no point in increasing a loss or reducing low earnings by claiming additional depreciation deductions that are not needed.

A point to remember when deciding between purchase of new or used equipment is that secondhand equipment must be depreciated by the straight-line method.

This tax factor should be considered because loss of the opportunity to use the declining balance method may cancel any immediate savings from the purchase of used equipment.

Form of Business

The matter may have been decided and forgotten many years ago, but a basic question for businessmen to reconsider—one which has many tax implications — is whether to do business as a proprietorship, partnership, or corporation. There may be personal or professional factors that force the selection and maintenance of a non-corporate form of organization. However, depending on the earnings of the business and the amount of those earnings needed for withdrawal, there are certain tax advantages in incorporating a new or expanding company.

Money can be saved by remembering that business decisions made in the fall affect the amount of tax to be paid in the spring. •

(Resume Reading on Page 36)

MARKS

Shown at right are correct trade marks, before alterations shown on Page 65. The manner in which they were changed is explained below:

1. Unchanged; 2. T eliminated; 3. Incorporated changed to Transportation Co.; 4. EAL added; 5. General Lee lost his sword; 6. Black background added to RAILWAY; 7. Wing color reversed; 8. 13 changed to 12; 9. Railway changed to lines; 10. Streamer and rope added; 11. World Wide added; 12. Miss Liberty given detail.



Materials Move Mechanically

Men and Materials Handling Equipment Expedite Dispatch in and out of the Port of Portland

Portland's new $9,300,000 modernization program has made possible further improvements and additional equipment to an already existant top ranking facility on the Pacific Coast.

You get things done when you ship in or out of the Progressive Port of the Pacific.



Terminal No. 1 offers the most versatile general cargo and lumber handling facilities anywhere. Modern equipment expedites handling.



Facilities to store and move bulk are unequaled on the Pacific Coast. Men, equipment and management make the difference.



Commission of Public Docks
PORTLAND, OREGON
"The Columbia River Gateway to the World"
3010 N. W. Front, Portland 10, Ore.
Thos. P. Guerin, Gen. Mgr.

BREAK THAT MULTIPLE SHIPPING BOTTLENECK

If you regularly address 5 or more cartons per shipment, *you can save money and avoid costly errors by addressing multiple shipments as a by-product of office procedure.*

You can prepare STEN-C-LABLS *at the same time* as your invoice, order or bill of lading, whatever your procedure or equipment—manual or electric typewriters, electric billing or accounting machines, Card-o-type, Teletype or Flexowriter.

Shipping department makes unlimited impressions with STEN-C-LABL Applicator direct to PANL-LABL on carton or to printed gummed labels or tags. All addressing errors, mis-shipments and repetitive writing are eliminated.

Thousands of dollars are being saved by present users.

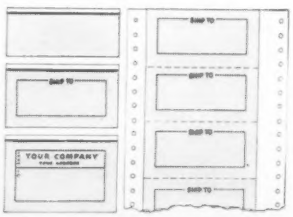
Choose the style that fits into your operation

from these continuous or unit forms available in a large number of different sizes;

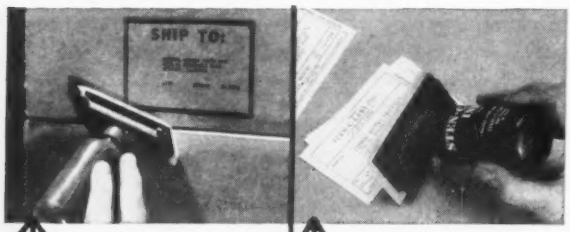
Blank STEN-C-LABL to imprint on gummed labels, tags or PANL-LABLS.

Stock "Ship To" STEN-C-LABL direct to carton—No gummed labels.

Special die-impressed STEN-C-LABL includes your name and address—direct to carton.



STEN-C-LABLS in continuous form for use in separate writing are available in same styles as unit forms shown.



Addressing direct to PANL-LABL printed on carton

Addressing with blank STEN-C-LABLS on printed gummed labels.

Addressing direct to carton with stock "Ship to" STEN-C-LABL.

Addressing direct to carton using die-impressed STEN-C-LABL.



WRITE TODAY for **FREE** brochure showing detailed operation and actual installations.

STEN·C·LABL, INC.

DEPT. DA-1, 2285 UNIVERSITY AVE., ST. PAUL 14, MINNESOTA

Circle No. 15 on Card, Facing Page 49, for more information

. . . Trailership Service

(Continued from Page 53)

be removed from the ship, take it down the gangplank;

3. Position the trailer for pick-up by the operators' tractor;

4. Back and couple to the trailer alongside of the one which was just brought from the ship, and in line for loading on to the ship;

5. Backing the trailer over the gangplank on to the ship deck, into the space just vacated.

These operations are repeated simultaneously on both sides of the ship. The sliding gangplanks can be positioned in a matter of seconds in order to permit movement of tractors in a direct and straight line.

On the lower decks of ships and piers, trailers should be mounted and lashed on pallets or low carriages which run on permanent tracks. Since the carriages move on swivel wheels, they can be carried on to their proper places on both piers and ships. The pallets stay with the ships and trailers until unloaded at the destination terminal.

Athwartship loading of two trailers, lengthwise across the beam of the ship, accomplishes four factors affecting the economy:

1. It suits the purpose of the trailership, which is concerned with units rather than weights and dimensions of trailers. The economy is simplified by making flat charges for space, regardless of weight and dimensions, at the levels of the ICC, the trailerships, and trailer operators;

2. It adds to the ships' stability;

3. It facilitates space reservations for trailer operators, regardless of trailer sizes used;

4. It accomplishes both loading and unloading within two hours or less.

Government Regulations

Registered and certified trucking operators, under either the ICC or State Public Utility Commissions, gradually are obtaining some kind of order out of the highway trucking chaos. The great difficulties with highway trucking are caused by the many classifications under which a great majority operate without certificates of public convenience and necessity. This means they operate without regulation or operating system.

When trailerships accept only the regular route certified operators, they are following the trend to limit duplication and destructive competition.

Trailerships should apply to the ICC or Public Service Commissions for permission to operate as common carriers of contained goods for other common carriers. As such, they will participate in the rate publications of the motor carriers. Charges which trailerships will collect from the motor carriers will be flat charges per trailer. They will be considered to be a division of the through motor

carrier rates, without disturbing their rate structures. Trailerships will not be compelled to establish complicated tariff publication.

This brings the trailership into an entirely new and stabilized form of transport for truck trailers. It converts waterways into water highways to take the place of overland highways. Also, it becomes a permanent part of our national transportation structure.

Management and Labor

Labor, union officials, and members of negotiating and arbitrating committees take the position that if trailership services would benefit the economy of certified regular route operations, it would benefit labor.

Proposed trailership services generally have been opposed, since they were designed principally to take trailers off the highways. This would mean the displacement of over-the-road personnel.

If such displacement of personnel were temporary, and it was seen that the trailership services would enable trailer operators to expand, labor could look forward to increased opportunities for employment under better and more stable working conditions.

Trailership service management must be devoted, with singleness of purpose, to providing a service to trailer operators that is more than the mere transport of trailers, accepting reservations, and collecting charges.

To this end, ship operation must be subordinated to overall transportation management. This is the keystone requirement for the stabilized success of the service.

The management structure can best be described in terms of two executive vice-presidents.

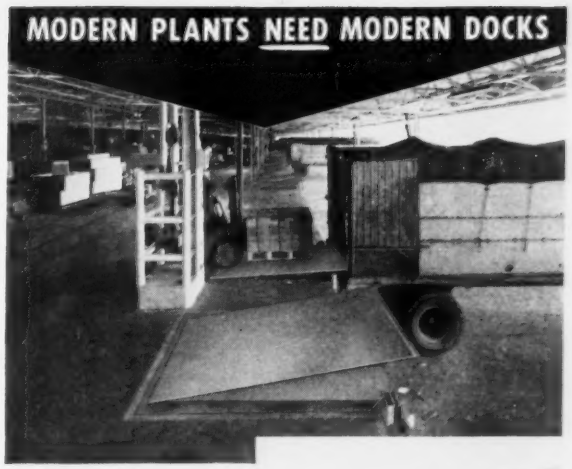
One is to be responsible for the ship's business. This includes management of pier operations, schedules of ship departures and arrivals, loading and unloading, labor relations, ICC and PUC regulations, publicity, sales promotion, and all public and trailer operator relations. He should be especially experienced in highway transportation.

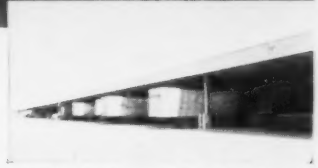
The other vice-president should be experienced in marine operations. He should be responsible for maintenance and physical operations of ships, pier, and terminal properties. He, through the captains, should be in complete control of the ships, all personnel, and cargo, from the moment the ship is ready for departure until it is again docked and secured. His responsibility includes safety of the ship's cargo, security of gangplanks, and battening down cargo.

Trailership service must be securely positioned for bringing our water highways into the system of total transportation. This will help resolve our transportation revolution and meet the challenge of the modern era which is based on distribution rather than transportation.

Our water highways are a tremendous asset to our economy. Their waste is appalling. Successful trailership service could be influential in eliminating much of this waste.●

(Resume Reading on Page 54)





Plan Ahead with

48 HI-LO Automatic Dockboards at Ford Motor Co. Pool Car Terminal Detroit, Michigan

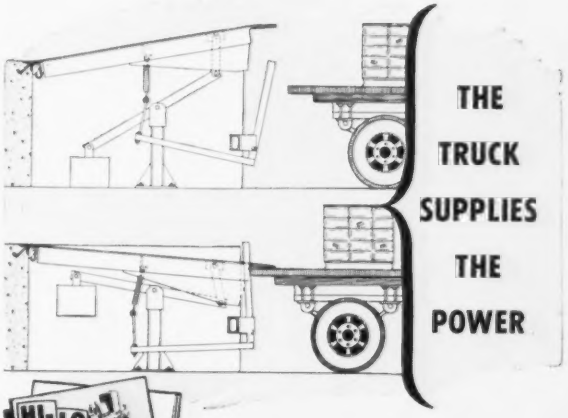
HI-LO® FULLY AUTOMATIC DOCKBOARDS

COMPLETELY AUTOMATIC
No dock attendant needed! The carrier automatically adjusts the HI-LO to its bed level the instant it contacts the dock.

FIRST COST IS ONLY COST
Simple counterweight system. No air, electric, or hydraulic power used. Built to outlive the dock!

PACKAGED OR RECESSED MODELS
Available in lengths to solve all loading problems for new installations or for the modernization of existing facilities.

AUTOMATIC CROSS TRAFFIC LOCK WITH SAFETY STOP PERMITS TRAFFIC ACROSS WIDTH OF RAMP WHEN HI-LO IS NOT IN USE.

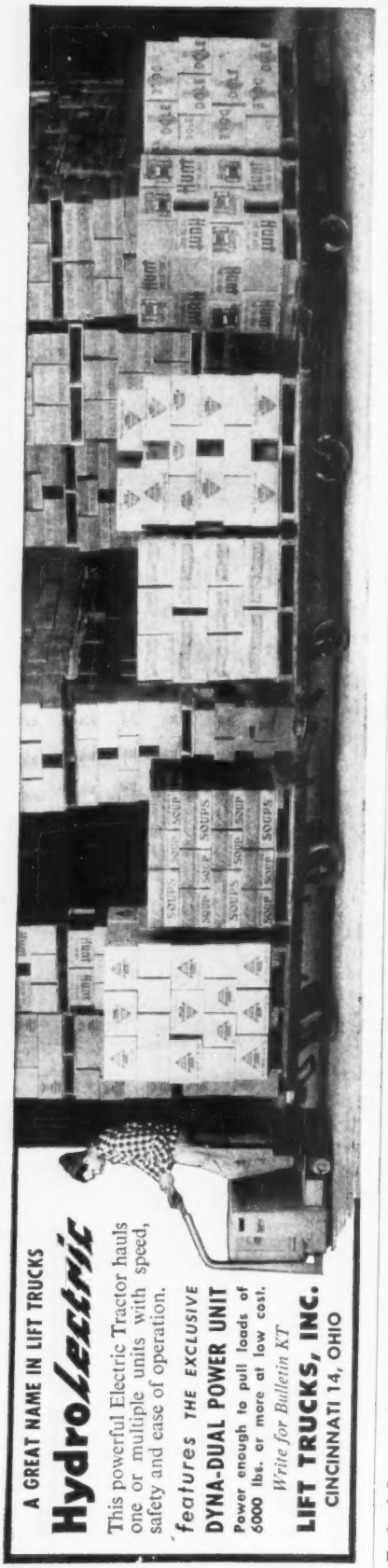




Send for this NEW CATALOG and BLUEPRINT FILE
It's jam-packed with pertinent information concerning the problems of dock loading and automatic dockboards.

THE KELLEY COMPANY, INC.
316 E. Silver Spring Drive • Room D • Milwaukee 17, Wis.

Circle No. 16 on Card, Facing Page 49, for more information



Circle 17 on Card Facing Page 49

The Age of Appreciation . . .

(Continued from Page 34)

high unloading costs that unit-load shipments by the producer are made a condition of the purchase order.

Stocking Rack System

We have been able to accomplish unitization within the six plants of the Clark Equipment Co., primarily because we own and operate our own inter-plant truck fleet. Had we been forced to depend on a common carrier, the freight charges on the containers used and on the uncertainty of having them returned may have made it economically impossible to employ a fairly expensive stacking rack which can be collapsed for return shipment.

Fig. 1 shows the basic stacking rack design. These racks can be decked one on top of the other. The four corner supporting posts can be turned down for nesting purposes when they are returned empty to the supply plant. Fig. 2 shows a number of the engine racks loaded in a highway trailer. This method of unitized handling permits moving the engine assemblies directly from the end of the production line in the vendor's supplying plant to the assembly line in our plant.

Fig. 3 shows the engine rack with the supporting posts folded down ready for the return trip. Under the new rack handling system, unloading of engines was speeded 100 per cent. Storage is much safer, with far less chance for damage to the engine. Also, the housekeeping problem is reduced considerably.

Fig. 4 shows the use of the rack and the tray pack principle loaded with hydraulic valves. Fig. 5 illustrates the basic rack modified for handling axles. It can handle three axle assemblies, as illustrated, or two extra large axle assemblies, as illustrated in Fig. 6.

We also had a problem of handling and storing transmissions. The transmission packaging previously used, placed four transmissions on one pallet as a unit load. While the break-up of unit loads and damage to transmissions, did not happen frequently, it still was persistent enough for us to desire a 100 per cent dependable package. Unitization for transmissions now uses the basic rack modified for transmission handling. We still have four transmissions per unit load, but do not have the problem of the unit load becoming damaged.

We have applied the stacking rack principle to the storage and handling of LPG tanks. We use the rack, equipped with wheels, as the delivery system for these tanks. The rack assembly, as illustrated in Fig. 7, can be handled by a fork lift truck, or it can be towed by a tractor. The rack will accommodate four different size tanks. It keeps them in the same position as when they are mounted on the truck.

Long haul operations are handled by straddle carriers. These carriers are able to pick up one or more unitized loads and move them rapidly from one section of the plant to another. The operation is illustrated in Fig. 8. We have found the straddle carrier method to be faster, at lower cost, and with less damage to materials in transit.

Standardized Containers

To gain the full potential in handling materials in unit loads, it will be necessary to develop more efficient transportation facilities and methods. We have used shipping containers for many years, but their use has been limited. Standardized shipping containers and an integrated system of handling and transporting those containers should be developed.

However, before such an integrated system can be developed, it will be necessary that the public carriers, particularly the railroads, take a more conciliatory and realistic attitude towards each other. They must recognize certain inherent costs and service advantages that each type of carrier has over the others.

The use of shipping containers for handling a wide variety of materials has been increasing. Shipping containers offer the advantages of shipping packaged goods and bulk materials to minimize damage, contamination, and pilferage in transit. These containers also avoid individual rehandling and checking of a number of small articles when transported in one large container. Containers vary in size. They run from relatively small units of a few cubic feet, to large demountable van bodies with over a thousand or more cubic feet of capacity.

Container Classification

Shipping containers can be classified into four categories which designate size and use:

1. Pallet containers,
2. Cargo containers,
3. Bulk shipping containers,
4. Van containers.

There are a great many types of pallet containers now in use. These include pallet boxes, baskets, racks, bins, crates, and carton containers. They are of such dimensions that multiple numbers will fit within a boxcar or highway truck. The style and construction of pallet containers vary widely, as well as the variety of materials from which they are fabricated. The size of a pallet container usually must be selected in accordance with the weight and quantity of material. It also must be compatible with efficient and small size handling equipment, inventory, and work-in-process policies.

A cargo container is a type of shipping container usually larger than a pallet container, but of weather-proof construction for outdoor storage and transportation on open cars, trucks, barges, and ships. Such containers are used for both bulk and merchandise materials. They are of rugged construction for crane handling. They also may be arranged for transporting many kinds of special freight with a variety of inside fixtures, or they may be insulated and refrigerated. Cargo containers are used primarily by water transportation companies, with

(*Please Turn Page*)

How to diagnose and cure...

SLUGGISH CIRCULATION



SYMPTOMS: Listless sales, poor response to new market trends, sagging sales graphs.

CAUSE: Failure to reach distributors and dealers promptly with new lines, inability to deliver quickly when market is at peak.

CURE: Exercise the fingers by dialing your local SLICK station. Reduce delivery time with SLICK airspeed Cut down on red tape with Slick's one-bill door-to-door service. Trim down your costs with Slick's comparable-with-surface rates, and the lowest minimum charge in the industry!

Amazing, New Wonder-Cure for Distribution Ills

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World Headquarters: 3415 Cedar Springs Road, Dallas, Texas

Domestic and International Air Cargo • Airmail • Air Express • Overseas passenger Charter

Certificated Scheduled Air Carrier • Member ATA

Electric Protection Services

FIRE·BURGLARY·HOLDUP

Automatic Fire Detection and Alarm Service

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Industrial Process and Heating System Supervisory Service

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AMERICAN DISTRICT TELEGRAPH CO.
155 SIXTH AVENUE NEW YORK 13, N.Y.
Central Stations in All Principal Cities

A·D·T

Circle No. 18 on Card, Facing Page 49, for more information

SAFE · CONVENIENT
DURABLE · LOW COST

BALLYMORE
SAFETY-STEP
LADDERS



Ballymore Safety-Step Ladders are available in a wide variety of sizes and models to meet working-height requirements up to 11'6". They are easily moved on rollers, but with no danger of "kick-out."

Made of all-welded ¾" steel tubing for maximum strength. Rust-resistant aluminum coating gives a durable, attractive finish. Handrails, optional on 2- through 8-step models, help eliminate fear of accidents. Three treads available: expanded steel, grip steel lath, and rubber-clad steel plate.

Write for specific information to Ballymore Company, West Chester 24, Pa.

BALLYMORE LADDERS

THE STANDARD BY WHICH SAFETY LADDERS ARE JUDGED

Circle 19 on Card Facing Page 49

The Age of Appreciation . . .

(Continued from Preceding Page)

some limited use by rail shippers. Essentially these containers remain captive from origin to destination.

A recent development in cargo containers is the liquefreeze container made by Aluminum Co. of America. It consists of an aluminum liner, six inches of insulation, and an aluminum outer jacket. It is used for shipping frozen foods long distances. (See "The Tote Container as a Common Denominator," DISTRIBUTION AGE, July, 1956, p. 43.)

Bulk shipping containers are used for handling crushed, powdered or fluid materials. Many are designed as a hopper type to be handled by fork truck or crane equipment. One recent development has been the "sealed bin" container made by the United States Rubber Co. These containers come in 70, 300 and 370-cu ft sizes, as shown in Fig. 9. They are handled either by crane or fork truck equipped with a lifting eye. The containers are collapsible. They are particularly suited for handling bulk material under certain circumstances.

Van-type Containers

In many respects the van-type container is equivalent to a truck or trailer body. It is built so that it can be mounted on a flat frame highway truck or trailer, or a railroad flat car. Van containers can vary in length, up to 35-ft. The cross section size of van containers corresponds to the outside/inside width and height dimensions of standard highway trucks, which would be approximately 8 ft wide, 8 ft high.

Van containers on flat cars have advantages over the trailer on flat car, or the piggy-back method. The time and cost of loading van containers is much less than is possible in piggy-back. A piggy-back trailer on flat car service requires expensive flat cars with special hold-down gear and other features peculiar to this service. A larger capital investment is required to haul the trailer chassis as well as the van body, and eliminates possibility of use of the chassis for other purposes during the trip.

The Mobilvan system developed by Clark Equipment is one of the latest developments in van containers. The important feature of the Mobilvan system is the automatic locking mechanism which fastens the van body to the flat car or trailer. It is activated when the van is picked up or deposited by a large fork lift truck or straddle carrier unit.

Variations of the van include tanks, hoppers, and flats. Each is equipped with the same locking device. A rack has been developed and used in transporting automobiles on flat cars. Mobilvan applications are shown in Figs. 10-11.

An integrated system of van containers offers many advantages such a system would go a long way toward reducing distribution



Circle 20 on Card Facing Page 49

costs on a national scale. It would be of substantial benefit to the shipper and the carriers.

Unit-Load Car

Another new development which has great possibilities of encouraging more utilization in industry is a unit-load freight car. The car is divided into five compartments, each with rolling side doors and area enough for receiving four standard unit pallet loads. It would permit five shippers to use the same car, or would permit one shipper to ship five different products. Tests show that this car can be unloaded by two men with fork trucks in less than 15 minutes.

Air transportation, which in future years will have quite an influence on the unitization of materials, remains pretty much a manual handling operation.

There is one system where materials are unitized and handled as a unit into the cargo compartment of aircraft. This system is known as "Cargon." In design it is similar to a Mobilflat container. Basically this system comprises wheeled pallets which are preloaded and then slid lengthwise into the aircraft. In operating tests it has been found easy to unload 12,000 lbs of cargo and load the same quantity all in the turn-around time of 20 minutes. The system presently is being used by New Zealand railways to move freight between north and south islands. The Bristol 170 freighter plane makes ten shuttle trips a day between airports.

Such a unit load system is needed, if only for speeding turn-around time of cargo aircraft. The capital investment in aircraft continues to become larger for each unit, and it will become increasingly more so as they become jet powered. Turn-around time will become a critical factor.

The development of an integrated system of pallet containers for air shipment also has great possibilities. It is quite possible that when this comes about, all mail and express shipments will be transported by air.•

(Resume Reading on Page 35)



NKP Piggyback serves fresh coffee every morning

Makers of "dated" coffee naturally want to get their freshly roasted product into your cup quickly—and economically.

Take the example of two coffee companies in New York City now using Nickel Plate Piggyback for shipment to Midwest cities. They—and their customers—like our dependable, early-morning deliveries for prompt servicing of hotels, restaurants and stores.

More Piggyback advantages: shipper and consignee always know exact location of shipment, rail safety, speed, competitive rates and service on all traffic and between all points where Piggyback service is maintained.

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PALLETS

1. In actual use, save up to $1, and more, per pallet load shipped.
2. Offers full rigid deck strength and economic advantages never before available.
3. Loads, secures and handles in every way currently employed with wooden pallets.
4. Eliminates return shipping costs, expensive inventory, control and bookkeeping systems.
5. Permit converting 75% of ordinarily allocated pallet storage space to more productive use.
6. No repair or maintenance.
7. End necessity for tying up capital in permanent pallet investment.
8. Stack loaded four-high.
9. Weigh only four pounds, can be manually handled with ease.

ALSO BULK CONTAINERS, TRAY-TYPE MODELS IN ALL SIZES AND CAPACITIES.

DELIVERIES ARE BEING MADE.
FOR COMPLETE INFORMATION, WRITE TODAY!

TITAN
PALLET COMPANY, INCORPORATED
527 Madison Avenue, New York 22, N. Y.

The Keystone of Modern Handling

Circle 21 on Card Facing Page 49

what are you doing about your small shipment problem?



ASK THE MAN FROM CENTRAL

CENTRAL Motor Lines

General Offices: Charlotte 1, North Carolina

Tomorrow's Trucks . . .

(Continued from Page 56)

display to reveal its power train. This model, with gvw of 30,000 lb, is available in wheelbases of 142, 154, 172, and 190 in. A new designed front drive axle with outrigger front spring mountings permits lowering of the chassis front end and provides improved stability.

There were seven trucks in the Dodge exhibit. A D700 chassis and cab, painted white and mounted on a special platform, was featured. This model is listed at 23,000-lb gvw and 45,000-lb gcw.

Reo's show models placed major emphasis on power options. One of the exhibits was a big COE tandem dump truck powered by a 160-hp, LP-gas engine. Another model featured the Reo Gold Comet V-8 which develops 235 hp.

Diamond T displayed a "gold-finished" tilt-cab. Models demonstrated the easy lifting of the cab, which works on counterbalancing springs and requires no power for tilting.

Biggest truck in the show was a six-wheel off-highway Mack Truck which stood three times the height of an automobile. It was powered by a 400-hp diesel.

Ford Motor Co. introduced its new tilt-cab COEs. The tilt-cab models run from 18,000 to 30,000 lb gvw.

GMC Truck & Coach Division featured its new DRA-802 highway tractor. Rated at 55,000 lb, this model makes extensive use of aluminum for lighter weight.

Chevrolet featured the Alcan Highway in its exhibit, using films to show trucks at work.

Studebaker's exhibits ranged from the half-ton pick-up to a new 19,000-lb gvw truck, model 3E40.

Center of interest at the Willys exhibit was an all-new forward control Jeep. •

(Resume Reading on Page 57)

Increase Your PROFITS WITH tOwKART



Do we mean it? You bet we do . . . Read this:

"We are handling more than 5 million pounds of merchandise across our dock every week, and can't afford to fool around with anything less than the most efficient method. Replacing our fork lift fleet with castered carts has brought about almost unbelievable savings . . . we recovered our original investment of about $10,000 twice in the first two months of operation. We're convinced the cart method is the answer to our handling problems."

Vice-Pres. a Chicago Freight Terminal

M-H EQUIPMENT CO., INC.
DALLAS, TEXAS
707 FABRICATION ST. • Riverside 7-4251

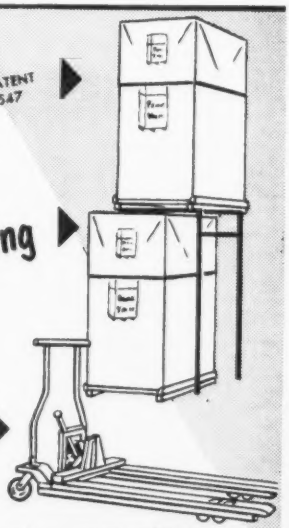
We've heard from others that an invitation to the tOwKart man to make a survey and recommendations has brought amazing results. Please have him call on

Name _____
Firm _____
Street _____
City _____ State _____

Ask for M-H Material Handling Trucks.

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WITH OUR
Pallet Vault® U.S. PATENT 2,709,547
Single or Double Stacking
and
General Jack Lift



You've got the cleanest . . . most efficient . . . cheapest storage system yet devised.

Inquiries Invited!

PALLET VAULT CORP.
4908 DELMAR BLVD. • ST. LOUIS 8, MO.
Write For Address of Nearest Agent

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Warehouse SPOTLIGHT



Men in the Spotlight

Frank A. Davis—promoted to operations manager of Security Storage and Van Co., Norfolk, Va.



J. W. Barker—appointed executive vice president of Palo Alto Transfer and Storage Co. He will have active executive management of the firm's operations.

G. Vincent Carey—Appointed assistant sales manager of D. H. Overmyer Warehouse Sales Co.



Collier F. Hendricks — appointed a district manager of Aero Mayflower Transit Co., Inc. His initial assignment will be with the International Div. of the Mayflower sales department.

W. G. Burris, Jr.—named operations manager for United Van Lines Inc., of St. Louis, Mo. **B. J. Bereswill**—becomes management coordinator.

Maurice Kreuter—appointed assistant manager of Atlanta Service Warehouse, Atlanta, Ga.

William T. Jobe, Jr.—new special assistant on industrial and legislative relations for the National Assn. of Refrigerated Warehouses.

Carl E. Addison—elected vice president and general manager, Sea Island Bonded Storage Corp., Beaufort, N. C.

F. Sydney Cunningham—named district manager at Richmond (Va.) Terminal of Baltimore Transfer Co.

Connecticut Association Headed by R. R. Palmer

At the recent annual meeting of the Connecticut Warehousemen's Association, Robert R. Palmer, of Palmer Bros., Ansonia, was re-elected president.

Serving with him will be Carl Larsen, The Blakeslee Co., Waterbury, first vice president; Robert Mooney, Hartford Despatch & Warehouse Co., Hartford, second vice president; Peter Kartovsky, West End Moving & Storage Co., Bridgeport, treasurer, and Fred Clauson, Moore's Storage Warehouse Co., Bridgeport, secretary.

Warehouse Briefs

Thomas N. Nelson & Co. Inc. has opened warehouse facilities in the new food terminal being constructed along the Southern Railroad at Birmingham. It is proposed, in addition to move the city's Farmer's Market to the site from its cramped, downtown quarters.

Plans for construction of a new 60,000-sq ft warehouse have been announced by **Bender Warehouse Co.**, of Reno. It will be constructed of concrete using the tilt-up technique.

Three Ivory Brothers Moving Co., of Detroit, Mich., has purchased the warehouse located at 8711 Grand River Ave., from **Riverside Storage and Cartage Co.** Riverside is subleasing about 25,000 of the building's 60,000 sq ft for its customers.

Mahlman Transfer Co., Mitchell, S. D., has been appointed an agent of **Aero Mayflower Transit Co., Inc.**

Pacific Storage and Distributing Co., of Tacoma, Wash., has been renamed **Pacific Storage Inc.** There has been no change in corporate structure.

Commercial Warehousing Co., of Philadelphia, Pa., is a new member of the **D. H. Overmyer Warehouse Sales Co.**

Tampa Colonial Warehouse and Transfer Co. Inc., recently formed company, opened a 50,000 sq ft warehouse at Tampa.

—DA—

Wisconsin Warehousemen Re-elect Entire Slate

Wisconsin Warehousemen's Association, meeting recently at Sheboygan, re-elected all of its 1956 officers.

Harold M. Willenson, American Warehouse Co., Milwaukee, was re-elected president.

Van Line Officers Appointed



Judge Nathan E. Zelby, trustee, Atlas Van-lines Inc., recently appointed officers for 1957. Company leaders are (left to right) Thomas C. Shelburne, Shelburne Transfer and Storage Co., southern vice president; Edmund F. McGuire, executive vice president and general manager; Robert Hammel, Hammel Moving and Storage Inc., secretary-treasurer; Carl F. Weber, Weber Moving and Storage Inc., president; Judge Zelby; C. Laverne Elliott, Chicago Avenue Transfer Inc., western vice president; and Edward J. Starck, Starck Van Lines Inc., eastern vice president

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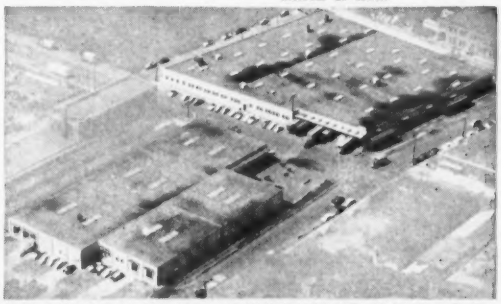


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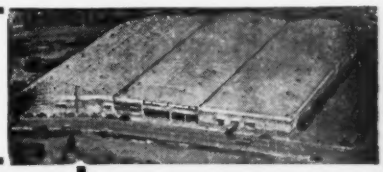
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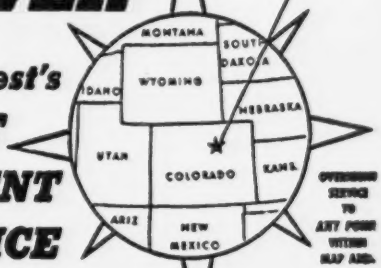
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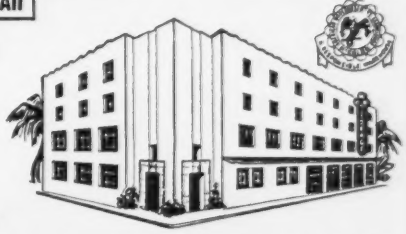
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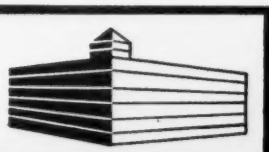
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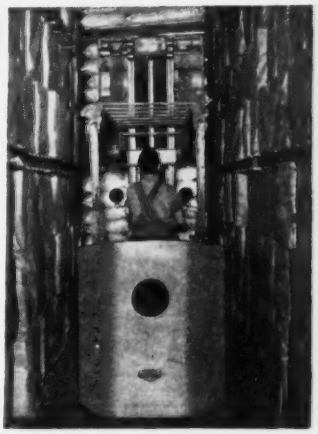
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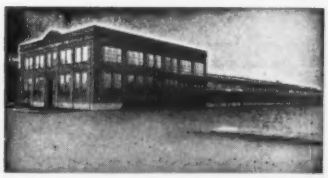
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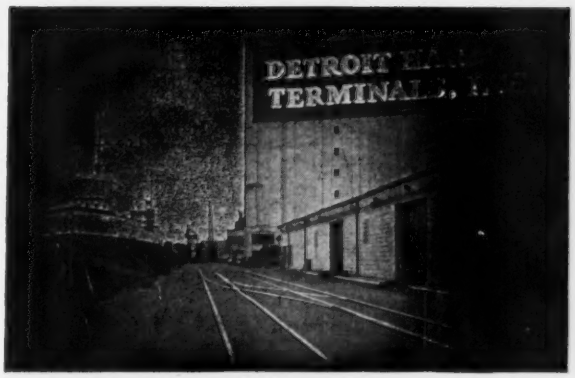
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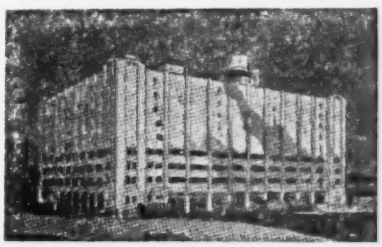
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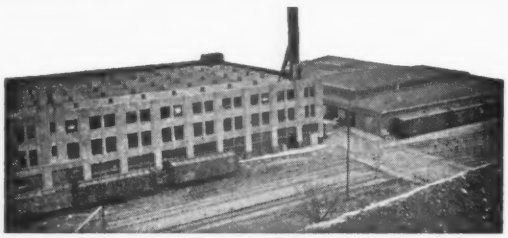
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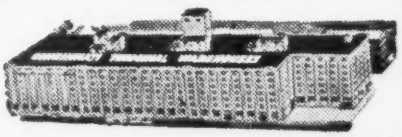
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Palletization Eases . . .

(Continued from Page 39)

As unit loads of beer come out of the palletizers, they are picked up by one of a fleet of eight 2000-lb capacity fork trucks. They are transported and stacked in the full case storage area, or carried directly to the trailer or city truck loading areas.

Six 4000-lb capacity low-lift platform trucks are used for loading and unloading trailers. Trailers formerly were loaded manually by a crew of from three to four men who required 80 minutes to complete the job. Now one man using a low-lift truck does the same job in 20 minutes.

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City delivery truck loading and unloading has been speeded by 10 adjustable telescopic conveyors. They operate through specially constructed ports in the loading dock wall to carry cases of beer into the delivery trucks.

Pallet loads of beer are brought to the city truck loading area by fork trucks. The trucks pick up loads either directly from the palletizers or from stock. Individual cases of beer are taken off the pallets by hand, placed on the telescopic conveyors and transported into the delivery trucks where they are unloaded and stacked.

While this system is dependent on manual handling to a certain extent, it represents a vast improvement over the former method. The possibility that city delivery trucks may be fully palletized at some future date was taken into consideration in the construction of the distribution center. Ports for the telescopic conveyors and overhead doors for fork truck operation in the city delivery section of the loading dock permit trailers to be loaded in the city delivery section during the hours when the city trucks are making deliveries.

The empty returnables are brought back to the distribution center by the city delivery trucks. They are unloaded by the telescopic conveyors which transport the empties from the truck into the distribution center, where they are stacked on pallets. Fork trucks carry the pallet loads to the empty storage area, or directly to reefed conveyors. These conveyors return the empties to the bottle house for sterilizing, cleaning, and refilling.

Palletization

Palletization makes it easy for the checkers to count returnables and check outgoing loads. Employees have been trained to think in terms of pallet loads. The pallet pattern is seven cases of bottles or cans to each layer. Cars are stacked 11 cases high, each pallet load containing 77 cases. Returnable bottles are stacked six high, 42 cases to a pallet.

Some 7500 pallets are used in the center. As in the case of returnable bottles, pallets are charged out to each distributor. They are credited to his account upon return.

Both pallet size and load height were considered carefully in the basic planning of the center. The building's supporting columns are located so that seven separate tiers of pallets fit snugly between each two columns. This assures maximum use of every inch of warehouse space. Controls and switches for lighting, heating, and intercommunication system speakers are located on the aisle side of columns for easy accessibility.•

(Resume Reading on Page 40)

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